

1/75

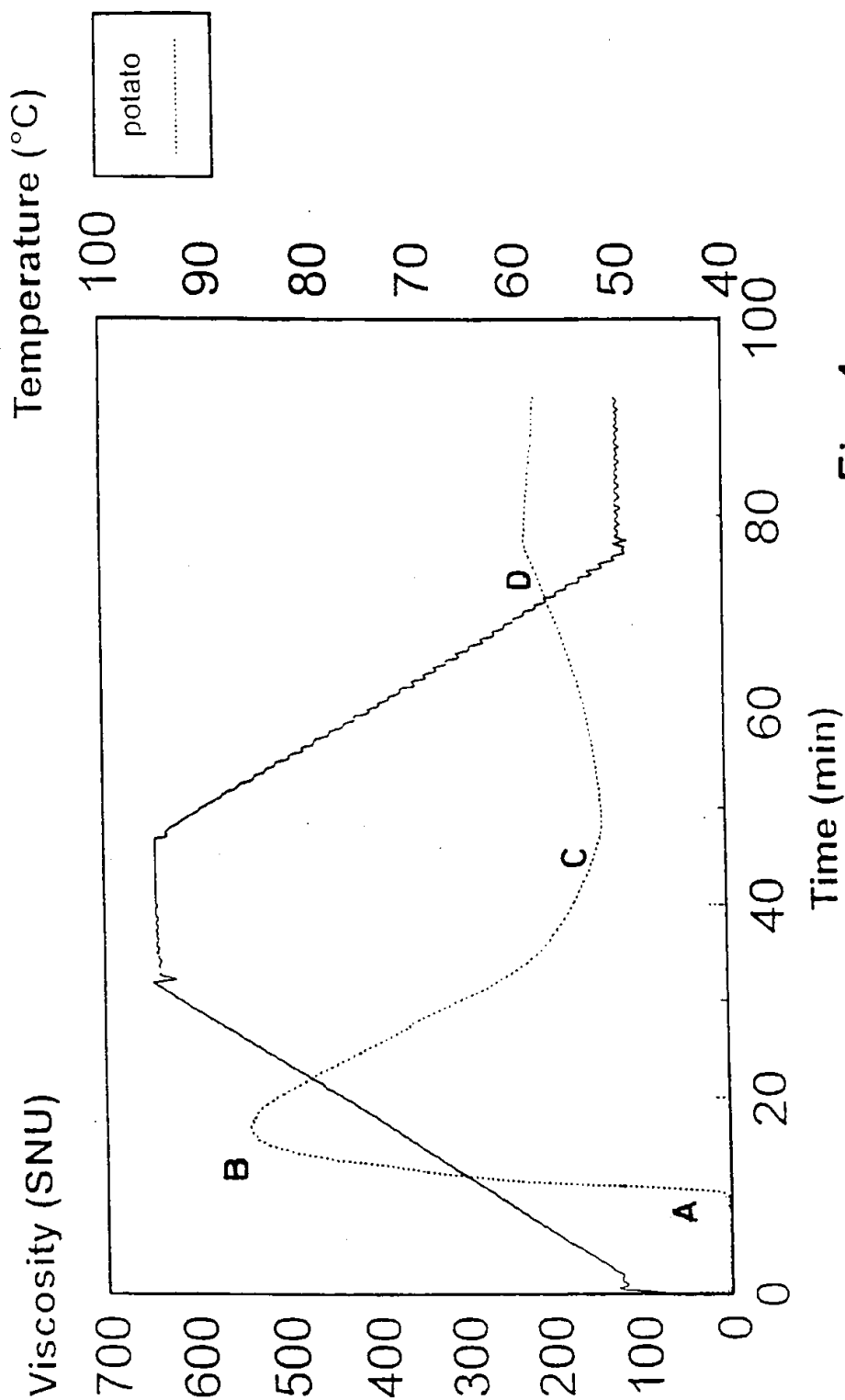
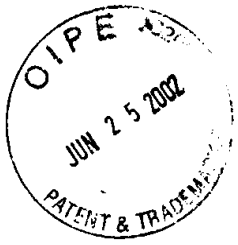


Fig. 1



2/75

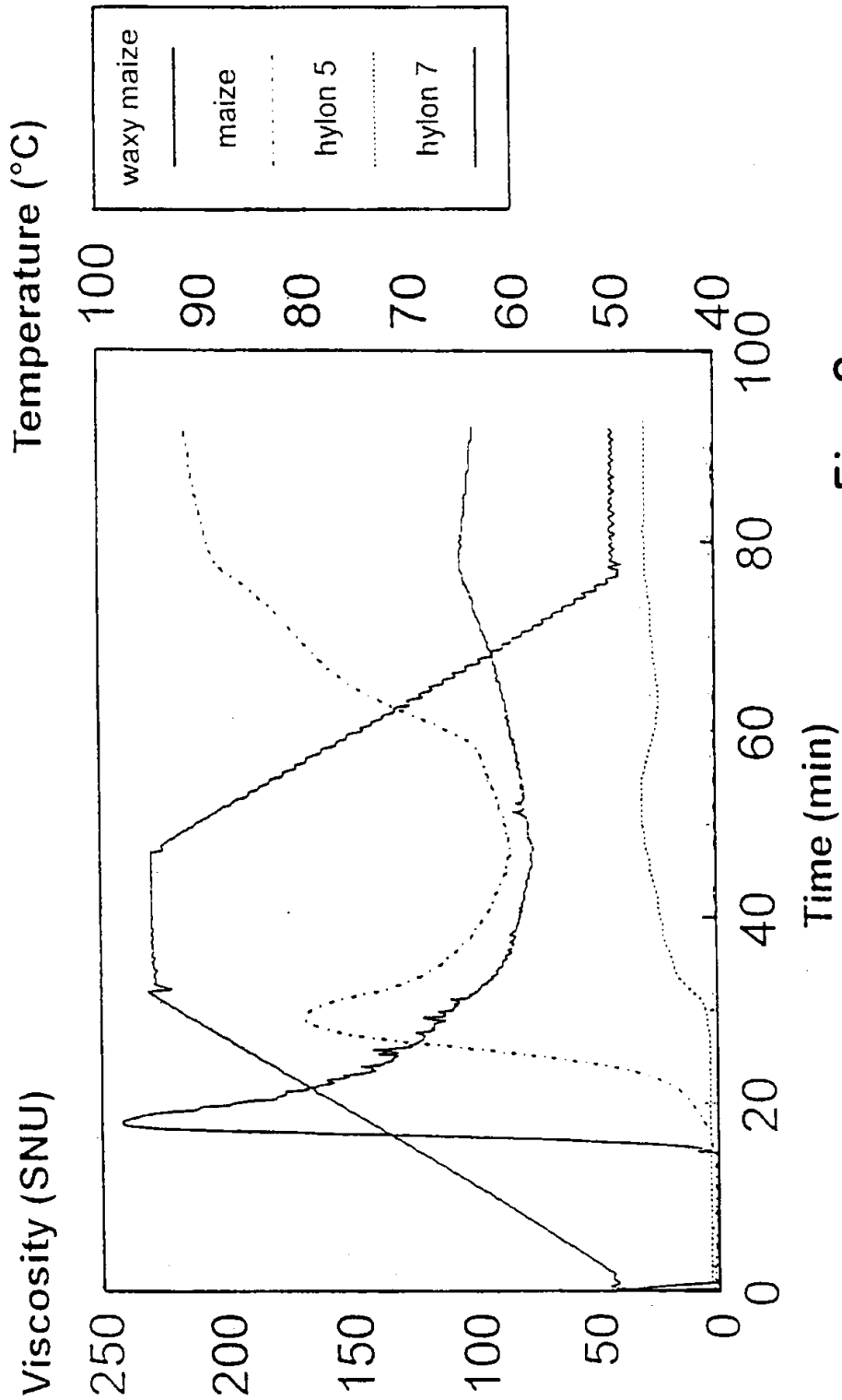


Fig. 2

3/75

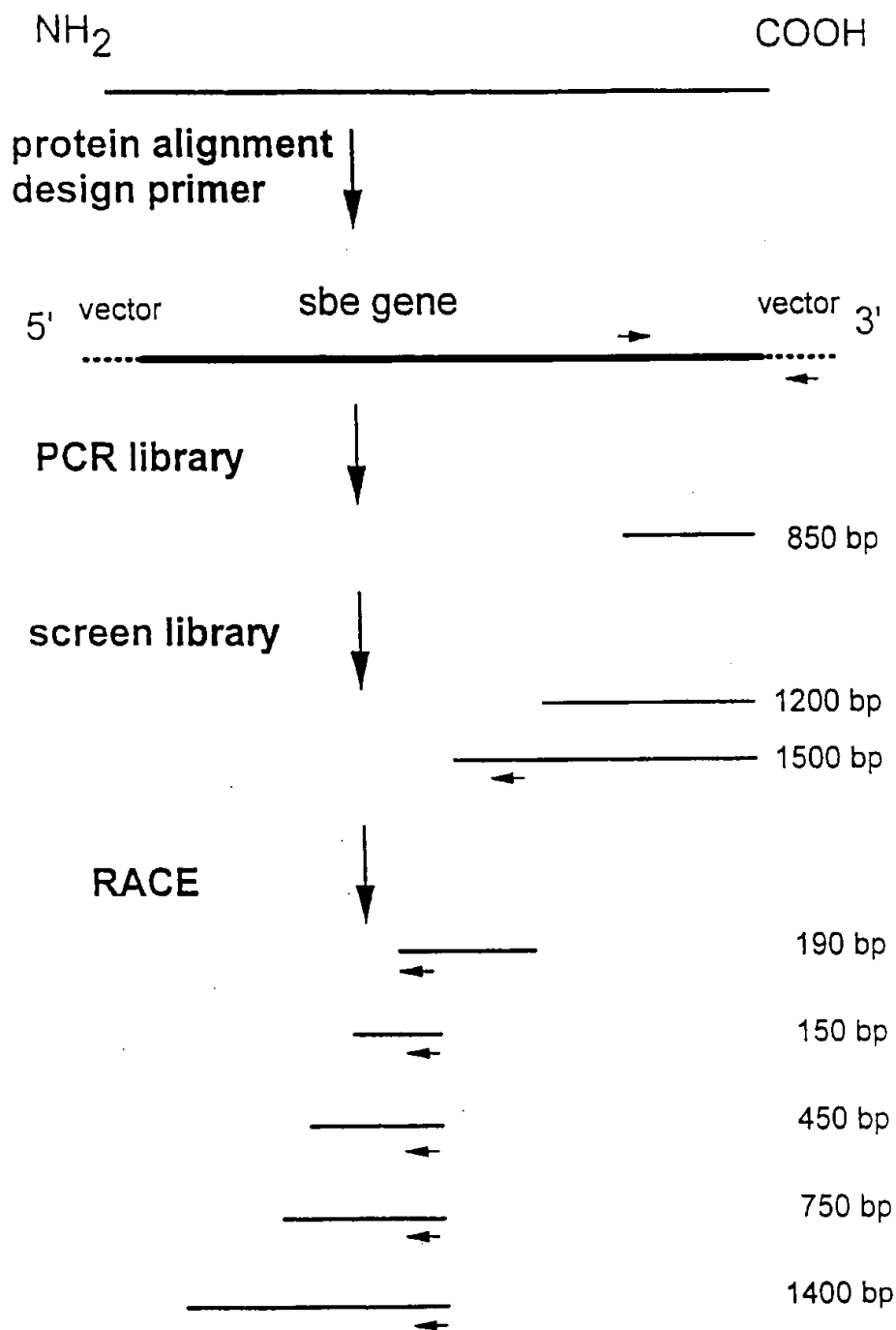


Fig. 3



4/75  
Fig. 4a  
Sheet 2

Majority	P	A	S	P	T	I	D	R	G	I	A	L	H	K	M	I	H	L	I	T	M	G	L	G	G	E	G	Y	L	N	F	M	G	N	
maize 2	P	S	T	P	T	I	D	R	G	I	A	L	H	K	M	I	R	L	I	T	M	G	L	G	G	E	G	Y	L	N	F	M	G	N	
pea 1	P	S	T	P	L	I	D	R	G	I	A	L	H	K	M	I	R	L	I	T	M	G	L	G	G	E	G	Y	L	N	F	M	G	N	
maize 1	P	A	S	P	T	I	D	R	G	I	A	L	H	K	M	I	H	F	I	T	M	A	L	G	G	E	G	Y	L	N	F	M	G	N	
rice 1	P	A	S	P	T	I	N	D	R	G	I	A	L	H	K	M	I	H	F	I	T	M	A	L	G	G	E	G	Y	L	N	F	M	G	N
potato1	D	A	S	P	V	V	D	A	G	I	A	L	H	K	M	I	R	L	I	T	H	G	L	G	G	E	G	Y	L	N	F	M	G	N	
human	P	F	T	P	V	I	D	R	G	I	A	L	H	K	M	I	R	L	I	T	H	G	L	G	G	E	G	Y	L	N	F	M	G	N	
Majority	F	S	L	G	D	A	D	H	L	R	Y	K	G	M	N	A	F	D	Q	A	M	N	A	L	E	E	K	F	S	F	L	A	S	S	
maize 2	F	D	L	G	D	A	D	Y	L	R	Y	H	G	M	Q	E	F	D	Q	A	M	Q	H	L	E	Q	K	Y	E	F	M	T	S	E	
pea 1	F	D	L	G	D	A	D	Y	L	R	Y	H	G	M	Q	E	F	D	Q	A	M	Q	H	L	E	Q	K	Y	E	F	M	T	S	E	
maize 1	W	S	L	V	D	T	D	H	L	R	Y	K	Y	M	N	A	F	D	Q	A	M	N	A	L	E	E	R	F	S	F	L	S	S	S	
rice 1	W	S	L	V	D	T	D	H	L	R	Y	K	Y	M	N	A	F	D	Q	A	M	N	A	L	E	E	R	F	S	F	L	S	S	S	
potato1	W	N	L	A	D	S	E	H	L	R	Y	K	F	L	N	A	F	D	Q	A	M	N	S	L	E	E	R	F	S	F	L	A	S	G	
human	F	H	L	T	D	D	L	L	R	Y	K	F	L	N	A	F	D	Q	A	M	N	R	L	E	E	R	Y	G	W	L	A	A	P		
Majority	K	V	G	C	D	L	P	G	K	Y	K	V	A	L	D	S	D	A	L	V	F	G	G	H	G	R	V	G	H	D	V	D	H	F	
maize 2	R	I	G	C	R	K	P	G	V	Y	K	V	V	L	D	S	D	A	G	L	F	G	G	F	S	R	I	H	A	A	E	H	F		
pea 1	K	V	G	C	L	K	P	G	K	Y	K	I	V	L	D	S	D	A	D	T	L	F	G	F	N	R	L	N	H	T	A	E	Y	F	
maize 1	K	V	G	C	D	L	P	G	K	Y	R	V	A	L	D	S	D	A	L	V	F	G	G	H	G	R	V	G	H	D	V	D	H	F	
rice 1	K	V	G	C	D	L	P	G	K	Y	R	V	A	L	D	S	D	A	L	V	F	G	G	H	G	R	V	G	H	D	V	D	H	F	
potato1	K	V	G	C	D	L	P	G	K	Y	R	V	A	L	D	S	D	A	W	E	F	F	G	G	H	G	R	A	G	H	D	V	D	H	F
human	R	V	G	T	A	L	P	G	K	F	K	I	V	L	D	S	D	A	A	E	Y	G	G	H	Q	R	L	D	H	S	T	D	F	F	

Fig. 4a SHEET 1



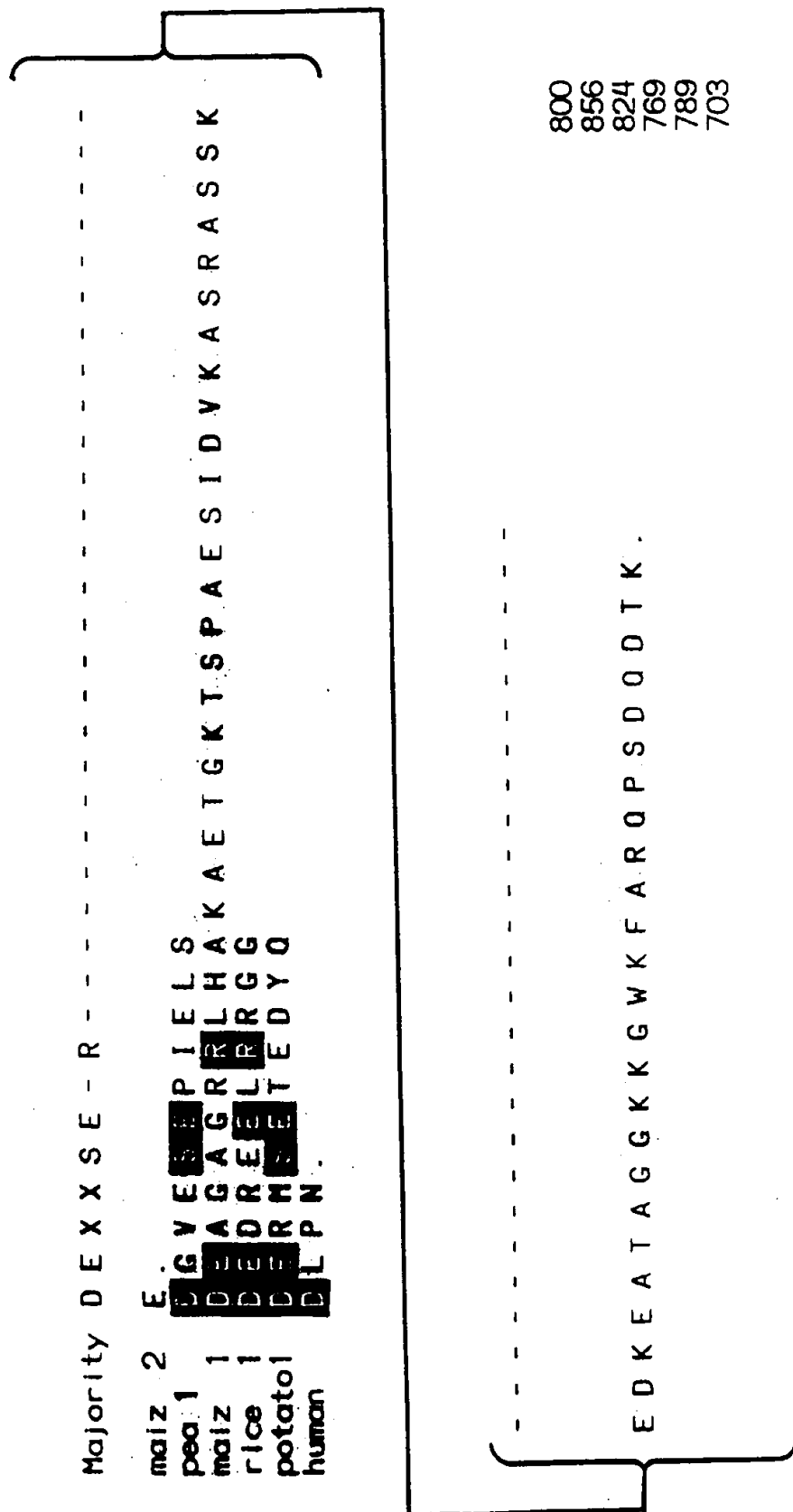
5/75

E F G H P E W I D F P R E - - - - - G N N W S Y D K C R R O	
E F G H P E W I D F P R R G P Q R L P S G K F I P P	666
E F G H P E W I D F P R R G P Q R L P S G K F I P P	713
E F G H P E W I D F P R R G P Q R L P S G K F I P P	624
E F G H P E W I D F P R R G P Q R L P S G K F I P P	618
E F G H P E W I D F P R R G P Q R L P S G K F I P P	638
E F G H P E W I D F P R R G P Q R L P S G K F I P P	566
K Q I V S D K N E G D K V I V F F E R G D L V F V F N F H P N N S Y E G Y	
H Q Y I S R R K H E E D K V I V F F E R G D L V F V F N F H P N N S Y E G Y	736
H Q Y I S R R K H E E D K V I V F F E R G D L V F V F N F H P N N S Y E G Y	783
K Q I V S D M N D E E K V I V F F E R G D L V F V F N F H P N N S Y E G Y	694
K Q I V S D M N D E E K V I V F F E R G D L V F V F N F H P N N S Y E G Y	688
K Q I V S D M N D E E K V I V F F E R G D L V F V F N F H P N N S Y E G Y	708
Q A Y V S E K H E G N K I I A F F E R A G L L F I F F N F H P N N S Y E G Y	636
T S P E G - P G V P E T N F N N R P N S F K V L S P S R T C V A Y Y R V	
T A - - - - - D C S H D N R P P Y S F S V Y T P S R T C V A Y Y A P V	798
T S P E G V P G V P E T N F N N R P P Y S F S V Y T P S R T C V A Y Y A P V	845
T S P E G V P G V P E T N F N N R P P Y S F S V Y T P S R T C V A Y Y A P V	764
T S P E G V P G V P E T N F N N R P P Y S F S V Y T P S R T C V A Y Y A P V	758
T S P E G V P G V P E T N F N N R P P Y S F S V Y T P S R T C V A Y Y A P V	778
S E - - - - - A F E H N G R P P Y S L L V Y T P S R T C V A Y Y A P V	698

Fig. 4a SHEET 2



6/75



SUBSTITUTE SHEET (RULE 26)

Fig. 4a SHEET 3

7/75

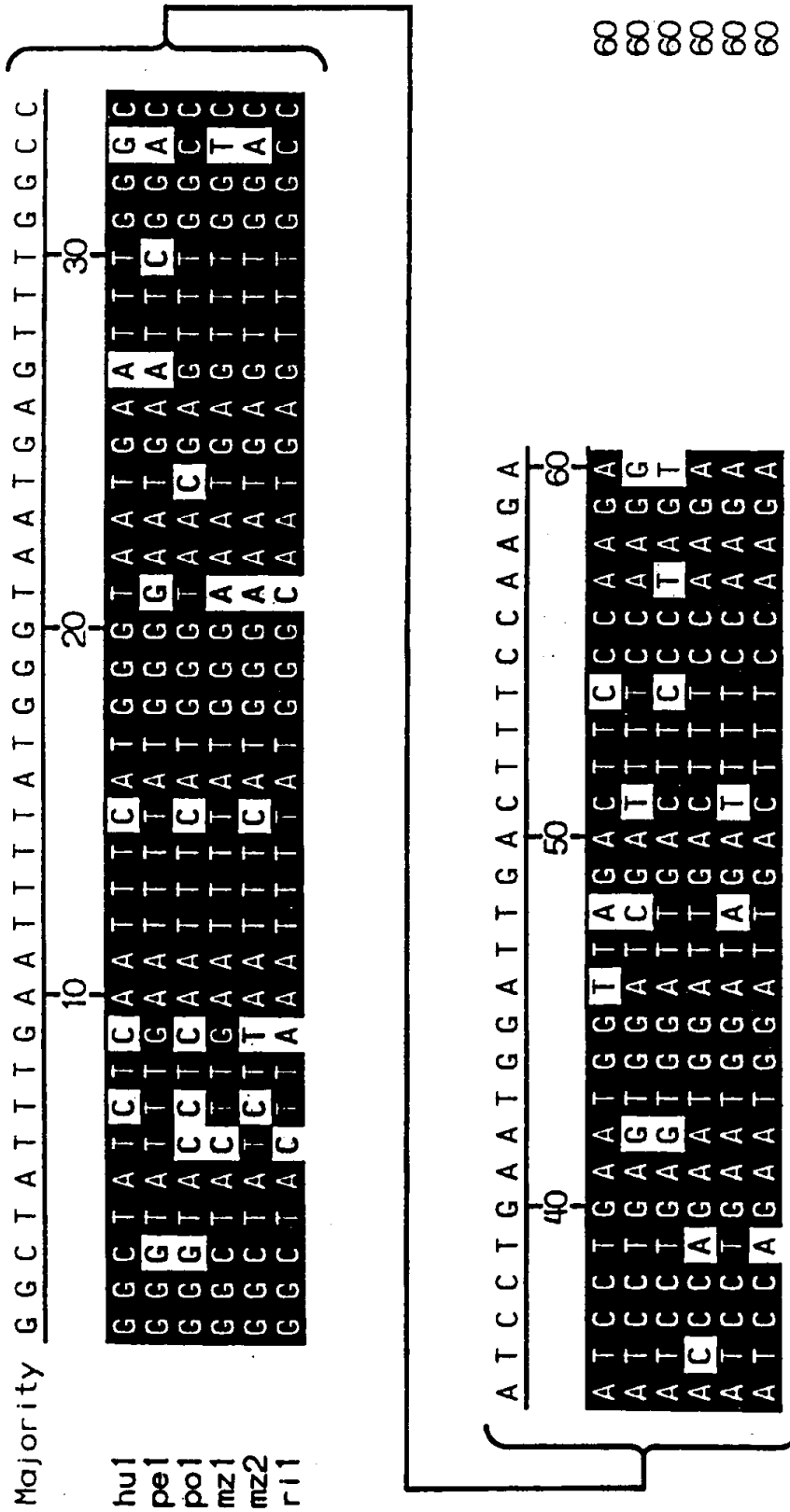


Fig. 4b



8/75

TTGATGGGGCCTTGAACCTCAGCAATTTGACACTCAGTTAGTTACA  
 AACTACCCCGGAACCTTGAGTCGTTAAACTGTGAGTCAATCAATGT

AAGGAATGAATAAAAGGATAGATTTGTAAAAACCCTAAGGAGAGA  
 TTCCTTACTTATTTTCCTATCTAAACATTTTGGGATTCTCTCT

M N K R I D L

GTTCCATCAGTGTACAAATCTAATGGATTTCAGCAGTAATGGTGAT  
 CAAGGTAGTCACATGTTTAGATTACCTAAGTCGTCATTACCACTA  
 V P S V Y K S N G F S S N G D

Bgl II

EcoRI

TCACGGAAGATCTTGGCTGAAAAGTCTTCTTACAATTCCGAATTC  
 AGTGCCTTCTAGAACCGACTTTTCAGAAGAATGTTAAGGCTTAAG  
 S R K I L A E K S S Y N S E F

ACCCAGAGTGATAGCTCCTCATCCTCAACAGACCAATTTGAGTTC  
 TGGGTCTCACTATCGAGGAGTAGGAGTTGTCTGGTTAAACTCAAG  
 T Q S D S S S S S T D Q F E F

AGTTCAACAATGGAACACGCTAGCCAGATTAAACTGAGAACGAT  
 TCAAGTTGTTACCTTGTGCGATCGGTCTAATTTGACTCTTGCTA  
 S S T M E H A S Q I K T E N D

GATTTTGCTTCATCACTACAACCTACAAGAAGGTGGTAAACTGGAG  
 CTAAACGAAGTAGTGATGTTGATGTTCTTCCACCATTTGACCTC  
 D F A S S L Q L Q E G G K L E

Fig 5  
Sheet 2

Fig. 5 SHEET 1





9/75

Bgl II

CTCCTATCACTTATCAGATCTCTATTTTTTCTCTTAATTCCAACC 90  
GAGGATAGTGAATAGTCTAGAGATAAAAAAGAGAATTAAGGTTGG

AGAAGAAAGATGGTGTATACACTCTCTGGAGTTCGTTTTCTACT 180  
TCTTCTTTCTACCATATGTGAGAGACCTCAAGCAAAAGGATGA  
M V Y T L S G V R F P T

CGGAGGAATGCTAATGTTTCTGTATTCTTGAAAAAGCACTCTCTT 270  
GCCTCCTTACGATTACAAAGACATAAGAACTTTTTTCGTGAGAGAA  
R R N A N V S V F L K K H S L

CGACCTTCTACAGTTGCAGCATCGGGGAAAGTCCTTGTGCCTGGA 360  
GCTGGAAGATGTCAACGTCGTAGCCCTTTCAGGAACACGGACCT  
R P S T V A A S G K V L V P G

ACTGAGACATCTCCAGAAAATTCCCCAGCATCAACTGATGTAGAT 450  
TGACTCTGTAGAGGTCTTTTAAGGGGTCGTAGTTGACTACATCTA  
T E T S P E N S P A S T D V D

GACGTTGAGCCGTCAAGTGATCTTACAGGAAGTGTTGAAGAGCTG 540  
CTGCAACTCGGCAGTTCACTAGAATGTCCTTCACAACTTCTCGAC  
D V E P S S D L T G S V E E L

GAGTCTAAAACATTAAATACTTCTGAAGAGACAATTATTGATGAA 630  
CTCAGATTTTGTAAATTTATGAAGACTTCTCTGTTAATAACTACTT  
E S K T L N T S E E T I I D E

Fig 5 SHEET 2



10/75

TCTGATAGGATCAGAGAGAGGGGCATCCCTCCACCTGGACTTGGT  
 AGACTATCCTAGTCTCTCTCCCCGTAGGGAGGTGGACCTGAACCA  
 S D R I R E R G I P P P G L G

CACCTTGATTACAGGTATTACAGTACAAGAACTGAGGGAGGCA  
 GTGGAACATAATGTCCATAAGTGTCATGTTCTTTGACTCCCTCCGT  
 H L D Y R Y S O Y K K L R E A

GAAAAAATGGGTTTCACTCGTAGTGCTACAGGTATCACTTACCGT  
 CTTTTTACCCAAAGTGAGCATCACGATGTCCATAGTGAATGGCA  
 E K M G F T R S A T G I T Y R

AACAATTGGGACGCAAATGCTGACATTATGACTCGGAATGAATTT  
 TTGTTAACCCTGCGTTTACGACTGTAATACTGAGCCTTACTTAA  
 N N W D A N A D I M T R N E F

GCAATTCCTCATGGGTCCAGAGTGAAGATACGTATGGACACTCCA  
 CGTTAAGGAGTACCCAGGTCTCACTTCTATGCATACCTGTGAGGT  
 A I P H G S R V K I R M D T P

Fig. 5  
 Sheet 4

Fig. 5 SHEET 3



11/75

Hinc II

CAGAAGATTTATGAAATAGACCCCTTTTGACAACTATCGTCAA  
GTCTTCTAAATACTTTATCTGGGGGAAAAGTGTGATAGCAGTT  
Q K I Y E I D P L L T N Y R Q

ATTGACAAGTATGAGGGTGGTTTGAAGCCTTTTCTCGTGGTTAT  
TAACTGTTCATACTCCACCAAACCTTCGGAAGAGACCAATA  
I D K Y E G G L E A F S R G Y

Pvu II

GAGTGGGCTCTTGGTGCCAGTCAGCTGCCCTCATTGGAGATTTT  
CTCACCCGAGAACCACGGGTCAGTCGACGGGAGTAACCTCTAAAG  
E W A L G A Q S A A L I G D F

GGTGTCTGGGAGATTTTCTGCCAAATAATGTGGATGGTTCTCCT  
CCACAGACCCTCTAAAAAGACGGTTTATTACACCTACCAAGAGGA  
G V W E I F L P N N V D G S P

TCAGGTGTTAAGGATTCCATTCCTGCTTGGATCAACTACTCTTTA  
AGTCCACAATTCCTAAGGTAAGGACGAACCTAGTTGATGAGAAAT  
S G V K D S I P A W I N Y S L

Fig. 5 SHEET 4



12/75

CAGCTTCCTGATGAAATTCATATAATGGAATACATTATGATCCA  
 GTCGAAGGACTACTTTAAGGTATATTACCTTATGTAATACTAGGT  
 Q L P D E I P Y N G I H Y D P

CCAAAGTCGCTGAGAATATATGAATCTCATATTGGAATGAGTAGT  
 GGTTCAGCGACTCTTATATACTTAGAGTATAACCTTACTCATCA  
 P K S L R I Y E S H I G M S S

Hind III

CTTCCTCGCATAAAAAAGCTTGGGTACAATGCGCTGCAAATTATG  
 GAAGGAGCGTATTTTTTCGAACCCATGTTACGCGACGTTTAATAC  
 L P R I K K L G Y N A L Q I M

ACAAATTTTTTGCACCAAGCAGCCGTTTTGGAACGCCCGACGAC  
 TGTTTAAAAAACGTGGTTCGTCGGCAAAACCTTGCGGGCTGCTG  
 T N F F A P S S R F G T P D D

CTCATGGACATTGTTTCACAGCCATGCATCAAATAATACTTTAGAT  
 GAGTACCTGTAACAAGTGTCGGTACGTAGTTTATTATGAAATCTA  
 L M D I V H S H A S N N T L D

Fig.5  
 Sheet  
 6

Fig. 5 SHEET 5

13/75



CCCGAAGAGGAGAGGTATATCTTCCAACACCCACGGCCAAAGAAA 1170  
GGGCTTCTCCTCTCCATATAGAAGGTTGTGGGTGCCGTTTCTTT  
P E E E R Y I F Q H P R P K K

CCGGAGCCTAAAATTAACATACGTGAATTTTAGAGATGAAGTT  
GGCCTCGGATTTTAATTGAGTATGCACTTAAAATCTCTACTTCAA 1260  
P E P K I N S Y V N F R D E V

GCTATTCAAGAGCATTCTTATTACGCTAGTTTTGGTTATCATGTC  
CGATAAGTTCTCGTAAGAATAATGCGATCAAAACCAATAGTACAG 1350  
A I Q E H S Y Y A S F G Y H V

CTTAAGTCTTTGATTGATAAAGCTCATGAGCTAGGAATTGTTGTT  
GAATTCAGAACTAACTATTTGAGTACTCGATCCTTAACAACAA 1440  
L K S L I D K A H E L G I V V

GGACTGAACATGTTTGACTGCACCGATAGTTGTTACTTTCACTCT  
CCTGACTTGTACAACTGACGTGGCTATCAACAATGAAAGTGAGA 1530  
G L N M F D C T D S C Y F H S

Fig. 5 SHEET 6



14/75

Sac I

GGAGCTCGTGGTTATCATTGGATGTGGGATTCCCGCCTCTTTAAC

CCTCGAGCACCAATAGTAACCTACACCCTAAGGGCGGAGAAATTG

G A R G Y H W M W D S R L F N

TGGTGGTTGGATGCGTTCAAATTTGATGGATTTAGATTTGATGGT

ACCACCAACCTACGCAAGTTTAACTACCTAAATCTAACTACCA

W W L D A F K F D G F R F D G

ACTGGGAACCTACGAGGAATACTTTGGACTCGCAACTGATGTGGAT

TGACCCTTGATGCTCCTTATGAAACCTGAGCGTTGACTACACCTA

T G N Y E E Y F G L A T D V D

TTCCCAGATGCAATTACCATTTGGTGAAGATGTTAGCGGAATGCCG

AAGGGTCTACGTTAATGGTAACCACTTCTACAATCGCCTTACGGC

F P D A I T I G E D V S G M P

CGGCTGCATATGGCAATTGCTGATAAACGGATTGAGTTGCTCAAG

GCCGACGTATACCGTTAACGACTATTTGCCTAACTCAACGAGTTC

R L H M A I A D K R I E L L K

ACAAATAGAAGATGGTCGGAAAAGTGTGTTTCATACGCTGAAAGT

TGTTTATCTTCTACCAGCCTTTTCACACAAAGTATGCGACTTTCA

T N R R W S E K C V S Y A E S

Fig 5  
Sheet 8

Fig. 5 SHEET 7

SUBSTITUTE SHEET (RULE 26)



15/75

TATGGAACTGGGAGGTACTTAGGTATCTTCTCTCAAATGCGAGA  
+-----+ 1620  
ATACCTTTGACCCTCCATGAATCCATAGAAGAGAGTTTACGCTCT  
Y G N W E V L R Y L L S N A R

GTGACATCAATGATGTATATTCACCACGGATTATCGGTGGGATTTC  
+-----+ 1710  
CACTGTAGTTACTACATATAAGTGGTGCCTAATAGCCACCCTAAG  
V T S M M Y I H H G L S V G F

Hinc II  
|

GCTGTTGTGATCTGATGCTGGTCAACGATCTTATTCATGGGCTT  
+-----+ 1800  
CGACAACACATAGACTACGACCAGTTGCTAGAATAAGTACCCGAA  
A V V Y L M L V N D L I H G L

ACATTTTGTATTCCCGTCCAAGAGGGGGGTGTTGGCTTTGACTAT  
+-----+ 1890  
TGTA AACATAAGGGCAGGTTCTCCCCCACAACCGAAACTGATA  
T F C I P V Q E G G V G F D Y

AAACGGGATGAGGATTGGAGAGTGGGTGATATTGTTTCATACACTG  
+-----+ 1980  
TTTGCCCTACTCCTAACCTCTCACCCACTATAACAAGTATGTGAC  
K R D E D W R V G D I V H T L

CATGATCAAGCTCTAGTCGGTGATAAACTATAGCATTCTGGCTG  
+-----+ 2070  
GTACTAGTTTCGAGATCAGCCACTATTTTGATATCGTAAGACCGAC  
H D Q A L V G D K T I A F W L

Fig. 5 SHEET 8



16/75

Hinc II

ATGGACAAGGATATGTATGATTTTATGGCTCTGGATAGACCGTCA  
TACCTGTTCCCTATACATACTAAAATACCGAGACCTATCTGGCAGT  
M D K D M Y D F M A L D R P S

Asp 718  
Kpn I

CTTGTAACCTATGGGATTAGGAGGAGAAGGGTACCTAAATTTTCATG  
GAACATTGATACCTAATCCTCCTCTTCCCATGGATTAAAGTAC  
L V T M G L G G E G Y L N F M

GAACAACACCTCTCTGATGGCTCAGTAATCCCCGGAACCAATTC  
CTTGTTGTGGAGAGACTACCGAGTCATTAGGGGCCTTTGGTTAAG  
E Q H L S D G S V I P G N Q F

Fig.5  
Sheet10

Ssp I

TATTTAAGATACCGTGGGTTGCAAGAATTTGACCGGCCTATGCAG  
ATAAATTCTATGGCACCCAACGTTCTTAAACTGGCCGGATACGTC  
Y L R Y R G L Q E F D R P M Q

ATATCACGAAAGGATGAAGGAGATAGGATGATTGTATTTGAAAAA  
TATAGTGCTTTCCTACTTCCTCTATCCTACTAACATAAACTTTTT  
I S R K D E G D R M I V F E K

TCAGACTATCGCATAGCCTGCCTGAAGCCTGGAAAATACAAGGTT  
AGTCTGATAGCGTATCGGACGGACTTCGGACCTTTTATGTTCCAA  
S D Y R I A C L K P G K Y K V

Fig.5 SHEET 9

SUBSTITUTE SHEET (RULE 26)



17/75



ACATCATTAAATAGATCGTGGGATAGCATTGCACAAGATGATTAGG 2160  
TGTAAGTAATTATCTAGCACCCCTATCGTAACGTGTTCTACTAATCC  
T S L I D R G I A L H K M I R

EcoRI

GGAAATGAATTCGGCCACCCTGAGTGGATTGATTTCCCTAGGGCT 2250  
CCTTTACTTAAGCCGGTGGGACTCACCTAACTAAAGGGATCCCGA  
G N E F G H P E W I D F P R A

AGTTATGATAAATGCAGACGGAGATTTGACCTGGGAGATGCAGAA 2340  
TCAATACTATTTACGTCTGCCTCTAAACTGGACCCTCTACGTCTT  
S Y D K C R R R F D L G D A E

TATCTTGAAGATAAATATGAGTTTATGACTTCAGAACACCAGTTC 2430  
ATAGAAGTTCTATTTATACTCAAATACTGAAGTCTTGTGGTCAAG  
Y L E D K Y E F M T S E H Q F

GGAAACCTAGTTTTTGTCTTTAATTTCACTGGACAAAAAGCTAT 2520  
CCTTTGGATCAAAAACAGAAATTAAGTGAAGTGTCTTTTCGATA  
G N L V F V F N F H W T K S Y

GCCTTGGACTCAGATGATCCACTTTTTGGTGGCTTCGGGAGAATT 2610  
CGGAACCTGAGTCTACTAGGTGAAAAACCAACCGAAGCCCTCTTAA  
A L D S D D P L F G G F G R I

Fig. 5 SHEET 10

18/75



Ssp I

GATCATAATGCCGAATATTTACCTTTGAAGGATGGTATGATGAT

CTAGTATTACGGCTTATAAAGTGGAAACTTCCTACCATACTACTA

D H N A E Y F T F E G W Y D D

GTCTATGCACTAGTAGACAAAGAAGAAGAAGAAGAAGAAGAAGAA

CAGATACGTGATCATCTGTTTCTTCTTCTTCTTCTTCTTCTTCTT

V Y A L V D K E E E E E E E E

TGAACGAACTTGTGATCGCGTTGAAAGATTTGAACGCTACATAGA

ACTTGCTTGAACACTAGCGCAACTTTCTAACTTGCGATGTATCT

Fig 5  
Sheet  
12

TCATGTGACACAAGGTTTGCAATTCTTTCCACTATTAGTAGTGCA

AGTACACTGTGTTCCAAACGTTAAGAAAGGTGATAATCATCACGT

EcoR I

Pst I

GATGAATTTATGTCGAATGCTGGGACGATCGAATTCCTGCAGGCC

CTACTTAAATACAGCTTACGACCCTGCTAGCTTAAGGACGTCCGG

Fig. 5 SHEET 11



19/75

CGTCCTCGTTCAATTATGGTGTATGCACCTTGTA AACAGCAGTG 2700  
GCAGGAGCAAGTTAATACCACATACGTGGAACATTTTGTCTGCAC  
R P R S I M V Y A P C K T A V

GAAGAAGAAGTAGCAGCAGTAGAAGAAGTAGTAGAGAAGAAGAA 2790  
CTTCTTCTTCATCGTCGTCATCTTCTTCATCATCATCTTCTTCTT  
E E E V A A V E E V V V E E E

Ssp I

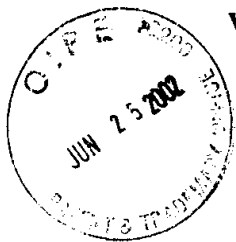
GCTTCTTGACGTATCTGGCAATATTGCATCAGTCTTGGCGGAATT 2880  
CGAAGAACTGCATAGACCGTTATAACGTAGTCAGAACCGCCTTAA

Cla I

ACGATATACGCAGAGATGAAGTGCTGAACAAACATATGTAAAATC 2970  
TGCTATATGCGTCTCTACTTCACGACTTGTTTGTATACATTTTAG

GGGGGACCCCTTAGTTCT 3033  
CCCCCTGGGGAATCAAGA

Fig. 5 SHEET 12

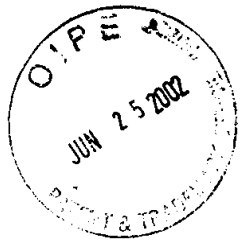


20/75

✓180      ✓190      ✓200      ✓210      ✓220  
IYEIDPLLTNYROHLDYRYSQYKKLREAI DKYEGGLEAFSRGYEKMGFTR  
: : : DP L. Y : H. : R. : Y. : : I: KYEG LE. F: : GY K. GF. R  
LLNLDPTLEPYLDHFRHRMKRYVDQKMLIEKYEGPLEEFAQGYLKFGFNR  
^100      ^110      ^120      ^130      ^140  
✓230      ✓240      ✓250      ✓260      ✓270  
SATGITYREWALGAQSAALIGDFNNWDANADIMTRNEFGVWEIFLPNNVD  
... I. YREWA : AQ. A. : IGDFN. W: : : : M. : : : FGVW. I : P: VD  
EDGCIVYREWAPAAQEA EVIGDFNGWNGSNHMMEKDQFGVWSIRIPD-VD  
^150      ^160      ^170      ^180      ^190  
✓280      ✓290      ✓300      ✓310      ✓320  
GSPAIPHGSRVKIRMDTPSGV-KDSIPAWINYSLQLPDEI--PYNGIHYD  
: . P. IPH. SRVK: R. : : GV D. IPAWI: Y: : : : PY: G: . D  
SKPVIPHNSRVKFRFKHNGVWVDRIPAWIKYATADATKFAAPYDGVYWD  
^200      ^210      ^220      ^230      ^240  
✓330      ✓340      ✓350      ✓360      ✓370  
PPEEERYIFQHPRPKPKSLRIYESHIGMSSPEPKINSYVNFRRDEVLPRI  
PP. ERY F: . PRP KP: : RIYE: H: GMSS: EP: : NSY : F D: VLPRI  
PPPSERYHFKYPRPPKPRAPRIYEAHVGMSSSEPRVNSYREFADDVLPRI  
^250      ^260      ^270      ^280      ^290  
✓380      ✓390      ✓400      ✓410      ✓420  
KKLGYNALQIMAIQEHSSYYASFGYHVTNFFAPSSRFGTPDDLKSLIDKAH  
K . YN: : Q: MAI EHSYY: SFGYHVTNFFA S: R: G. P: DLK LIDKAH  
KANNYNTVOLMAIMEHSYYGSFGYHVTNFFAVSNRYGNPEDLKYLIDKAH  
^300      ^310      ^320      ^330      ^340  
✓430      ✓440      ✓450      ✓460      ✓470  
ELGIVVLMDIVHSHASNNTLDGLNMFDC---TDSCYFHSGARGYHWMWDS  
. LG: VL: D: VHSHASN. DGLN FD : : : YFH: G. RGYH : WDS  
SLGLQVLVDVVHSHASNNTDGLNGFDIGQGSQESYFHAGERGYHKLWDS  
^350      ^360      ^370      ^380      ^390  
✓480      ✓490      ✓500      ✓510      ✓520  
RLFNYGNWEVRLRYLLSNARWWLDAFKFDGFRFDGVTSMYIHHGLSVGFT  
RLFNY: NWEVLR: LLSN RWWL: : : FDGFRFDG: TSM: Y: HHG: : : GFT  
RLFNYANWEVLRFLLSNLRWWLEENYFDGFRFDGITSMLYVHHGINMGFT  
^400      ^410      ^420      ^430      ^440  
✓530      ✓540      ✓550      ✓560      ✓570  
GNYEEYFGLATDVEDAVVYLMVNDLIHGLFPDAITIGEDVSGMPTFCIPV  
GNY: EYF: ATDVEDAVVYLM. N: LIH : FPDA. . I: EDVSGMP. : . PV  
GNYNEYFSEATDVEDAVVYLMANLIHKIFPDATVIAEDVSGMPGLSRPV  
^450      ^460      ^470      ^480      ^490  
✓580      ✓590      ✓600      ✓610      ✓620  
OEGGVGFDYRLHMAIADKRIELK-KRDEDWRVGDIVHTLTNRRWSEKCV  
EGG: GFDYRL MAI: DK: I: LK K. DEDW: : : : LTNRR: : EKC:  
SEGGIGFDYRLMAIPDKWIDYLNKNKDEDSMKEVTSSLTNRRYTEKCI  
^500      ^510      ^520      ^530      ^540

Fig. 6 SHEET 1

SUBSTITUTE SHEET (RULE 26)



21/75

↙630 ↙640 ↙650 ↙660 ↙670  
 SYAESHDOALVGDKTIAFWLMDKDMYDFMALDRPSTSLIDRGIALHKMIR  
 : YAESHDOQ: : VGDKTIAF LMDK: MY. M: : : : : DRGIALHKMI:  
 AYAESHDOQSI VGDKTIAFL LMDKEMYSGMSCLTDASP VVDRGIALHKMIH  
 ^550 ^560 ^570 ^580 ^590  
 ↙680 ↙690 ↙700 ↙710 ↙720  
 LVTMGLGGEGYLNFMGNEFGHPEWIDFPRAEQHLSDGSVIPGNQFSYDKC  
 : TM: LGGEGYLNFMGNEFGHPEWIDFPR GN: SYDKC  
 FFTMALGGEGYLNFMGNEFGHPEWIDFPR-----EGNNWSYDKC  
 ^600 ^610 ^620 ^630  
 ↙730 ↙740 ↙750 ↙760 ↙770  
 RRRFDLGDAEYLRYRGLQEFDRPMQYLEDKYEFMTSEHQFISRKDEGDRM  
 RR: : : L: D: E. LRY: : : . FDR: M: L: : K: . F: : S: . Q: : S: . D: : : : :  
 RRQWNLADSEHLRYKFMNAFD RAMNSLDEKFSFLASGKQIVSSMDDDNKV  
 ^640 ^650 ^660 ^670 ^680  
 ↙780 ↙790 ↙800 ↙810 ↙820  
 IVFEKGNL V F V F N F H W T K S Y S D Y R I A C L K P G K Y K V A L D S D D P L F G G F G R I  
 : VFE: G: L V F V F N F H . : : Y: : Y: : : C P G K Y: V A L: S D. F G G G R  
 V V F E R G D L V F V F N F H P N N T Y E G Y K V G C D L P G K Y R V A L G S D A W E F G G H G R A  
 ^690 ^700 ^710 ^720 ^730  
 ↙830 ↙840 ↙850 ↙860  
 DHNAEYFT-----FEGWYDDRPRS IMVYAPCKTAVVYALVDKEEEEE  
 : H: : : . FT E. : : : R P. S: . V : P : T V. Y V D. . E.  
 GHDVDHFTSPEGIPGVPETNFNGRPNSFKVLSPARTCVAYYRVDERMSET  
 ^740 ^750 ^760 ^770 ^780  
 ↙870  
 EEEEEEV  
 E: : : : :  
 EDYQTDI  
 ^790

Fig. 6 SHEET 2



↖10                  ↖20                  ↖30                  ↖40  
 M V Y T L S G V R F P T V P S V Y K S N G F S S N G D R R N A N V S V F L K K H -- S L S R K I L A  
 M V Y T : S G : R F P . : P S : . K S : . D R R . : : S F L K : : S : S R . L  
 M V Y T I S G I R F P V L P S L H K S --- T L R C D R R A S S H S F F L K N N S S S F S R T S L Y  
       ↖10                  ↖20                  ↖30                  ↖40  
 ↖50                  ↖60                  ↖70                  ↖80                  ↖90  
 E K S S Y N S E F R P S T V A A S G K V L V P G T Q S D S S S S S T D Q F E F T E T S P E N S P A S  
 . K S : S E : : S T : A . S : K V L : P . . Q D : S S : D Q : E . . . : E : . .  
 A K F S R D S E T K S S T I A E S D K V L I P E D Q - D N S V S L A D Q L E N P D I T S E D A Q N L  
       ↖50                  ↖60                  ↖70                  ↖80                  ↖90  
 ↖100                  ↖110                  ↖120                  ↖130                  ↖140  
 T D V S S T M E H A S Q I K T E N D D V E P S S D L T G S V E E L D F A S S L Q L Q E G G K L E E  
 . D : T M . : : : . : . : . : . : . : . : . : . : . : . : . : . : S : : : : : :  
 E D L --- T M K D G N K Y N I D - E S T S S Y R E V G D E K G S V T S S S L V D V N T D T Q -- A  
       ↖100                  ↖110                  ↖120                  ↖130                  ↖140  
 ↖150                  ↖160                  ↖170                  ↖180                  ↖190  
 S K T L N T S E E T I I D E S D R I R E R G I P P P G L G Q K I Y E I D P L L T N Y R Q H L D Y R Y  
 . K T S : . . : . : : I I P P P G G Q K I Y E I D P L L . . R O H L D : R Y  
 K K T S V H S D K K V K V D K P K I --- I P P P G S G Q K I Y E I D P L L Q A H R Q H L D F R Y  
       ↖150                  ↖160                  ↖170                  ↖180  
 ↖200                  ↖210                  ↖220                  ↖230                  ↖240  
 S Q Y K K L R E A I D K Y E G G L E A F S R G Y E K M G F T R S A T G I T Y R E W A L G A Q S A A L  
 : Q Y K : : R E . I D K Y E G G L : A F S R G Y E K . G F T R S A T G I T Y R E W : G A : S A A L  
 G Q Y K R I R E E I D K Y E G G L D A F S R G Y E K F G F T R S A T G I T Y R E W G P G A K S A A L  
       ↖190                  ↖200                  ↖210                  ↖220                  ↖230  
 ↖250                  ↖260                  ↖270                  ↖280                  ↖290  
 I G D F N N W D A N A D I M T R N E F G V W E I F L P N N V D G S P A I P H G S R V K I R M D T P S  
 : G D F N N W : : N A D : M T : : . F G V W E I F L P N N . D G S P : I P H G S R V K I : M D T P S  
 V G D F N N W N P N A D V M T K D A F G V W E I F L P N N A D G S P P I P H G S R V K I H M D T P S  
       ↖240                  ↖250                  ↖260                  ↖270                  ↖280  
 ↖300                  ↖310                  ↖320                  ↖330                  ↖340  
 G V K D S I P A W I N Y S L Q L P D E I P Y N G I H Y D P P E E E R Y I F Q H P R P K K P K S L R I  
 G : K D S I P A W I : : S : Q P : E I P Y N G I . Y D P P E E E : Y : F : H P : P K : P : S : R I  
 G I K D S I P A W I K F S V Q A P G E I P Y N G I Y Y D P P E E E K Y V F K H P Q P K R P Q S I R I  
       ↖290                  ↖300                  ↖310                  ↖320                  ↖330  
 ↖350                  ↖360                  ↖370                  ↖380                  ↖390  
 Y E S H I G M S S P E P K I N S Y V N F R D E V L P R I K K L G Y N A L Q I M A I Q E H S Y Y A S F  
 Y E S H I G M S S P E P K I N : Y . N F R D : V L P R I K K L G Y N A : Q I M A I Q E H S Y Y A S F  
 Y E S H I G M S S P E P K I N T Y A N F R D D V L P R I K K L G Y N A V Q I M A I Q E H S Y Y A S F  
       ↖340                  ↖350                  ↖360                  ↖370                  ↖380  
 ↖400                  ↖410                  ↖420                  ↖430                  ↖440  
 G Y H V T N F F A P S S R F G T P D D L K S L I D K A H E L G I V V L M D I V H S H A S N N T L D G  
 G Y H V T N F F A P S S R F G T P : D L K S L I D : A H E L G : : V L M D I V H S H : S N N T L D G  
 G Y H V T N F F A P S S R F G T P E D L K S L I D R A H E L G L L V L M D I V H S H S S N N T L D G  
       ↖390                  ↖400                  ↖410                  ↖420                  ↖430

Fig. 7 SHEET 1

**SUBSTITUTE SHEET (RULE 26)**

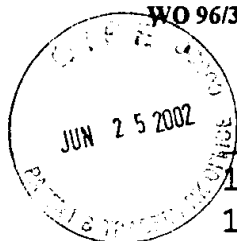


23/75

↙450 ↙460 ↙470 ↙480 ↙490  
 LNMFDCTDSCYFHSGARGYHWMWDSRLFNNGWVLRVLLSNARWWLDAF  
 LNMFD TD: YFH: G: RGYHWMWDSRLFNNG: WEVLRVLLSNARWWLD: :  
 LNMFDGTDGHYFHPGSRGYHWMWDSRLFNNGSWEVLRVLLSNARWWLDEY  
 ^440 ^450 ^460 ^470 ^480  
 ↙500 ↙510 ↙520 ↙530 ↙540  
 KFDGFRFDGVTSMYIHHGLSVGFTGNYYEYFGLATDVDAVVYMLVNDL  
 KFDGFRFDGVTSMY. HHGL V: FTGNY. EYFGLATDV: AVVY: MLVNDL  
 KFDGFRFDGVTSMYTHHGLQVSFTGNYYEYFGLATDVEAVVYMLVNDL  
 ^490 ^500 ^510 ^520 ^530  
 ↙550 ↙560 ↙570 ↙580 ↙590  
 IHGLFPDAITIGEDVSGMPTFCIPVQEGGVGFDYRLHMAIADKRIELLKK  
 IHGLFP: A: : IGEDVSGMPTFC: P. Q: GG: GF: YRLHMA: ADK: IELLKK  
 IHGLFPEAVSIGEDVSGMPTFCIPVQEGGVGFDYRLHMAVADKWIELLLKK  
 ^540 ^550 ^560 ^570 ^580  
 ↙600 ↙610 ↙620 ↙630 ↙640  
 RDEDWRVGDIVHTLTNRRWSEKCVSYAESHDQALVGDKTIAFWLMDKDMY  
 : DEDWR: GDIVHTLTNRRW EKV SYAESHDQALVGDKT: AFWLMDKDMY  
 QDEDWRMGDIVHTLTNRRWLEKCVSYAESHDQALVGDKTLAFWLMDKDMY  
 ^590 ^600 ^610 ^620 ^630  
 ↙650 ↙660 ↙670 ↙680 ↙690  
 DFMALDRPSTSLIDRGIALHKMIRLVTMGLGGEGYLNFMGNFEGHPEWID  
 DFMALDRPST: LIDRGIALHKMIRL: TMGLGGEGYLNFMGNFEGHPEWID  
 DFMALDRPSTPLIDRGIALHKMIRLITMGLGGEGYLNFMGNFEGHPEWID  
 ^640 ^650 ^660 ^670 ^680  
 ↙700 ↙710 ↙720 ↙730 ↙740  
 FPRAEQHLSDGSVIPGNQFSYDKCRRRFDLGD AEYLRYRGLQEFDRPMQY  
 FPR: EQHL: : G: : PGN: SYDKCRRRFDLGD: YLRY: G: QEFDR: MQ.  
 FPRGEQHL PNGKIPGNNSYDKCRRRFDLGDADYLR YHGMQEFDRAMQH  
 ^690 ^700 ^710 ^720 ^730  
 ↙750 ↙760 ↙770 ↙780 ↙790  
 LEDKYEFTSEHQFISRKDEGDRMIVFEKGNLVFVFNFWHTKSYSDYRIA  
 LE: . Y. FMTSEHQ: ISRK: EGDR: I: FE: : NLVFNFWHT: SYSDY: : :  
 LEETYGFMTSEHQYISRKNEGDRVIFERDNLVFNFWHTNSYSDYKVG  
 ^740 ^750 ^760 ^770 ^780  
 ↙800 ↙810 ↙820 ↙830 ↙840  
 CLKPGKYKVALDSDDPLFGGFGRIDHNAEYFTFEGWYDDRPRSIMVYAPC  
 CLKPGKYK: . LDSDD. LFGGF. R: : H. AEYFT EGWYDDRPRS: : VYAP.  
 CLKPGKYKIVLDSDDTLFGGFNRLNHTAEYFTSEGWYDDRPRSFLVYAPS  
 ^790 ^800 ^810 ^820 ^830  
 ↙850 ↙860 ↙870  
 KTAVVYALVDKEEEEEEEEEEEVAA  
 : TAVVYAL. D E. E E. : . V. :  
 RTAVVYALADGVESEPIELSDGVES  
 ^840 ^850 ^860

Fig. 7 SHEET 2

24/75



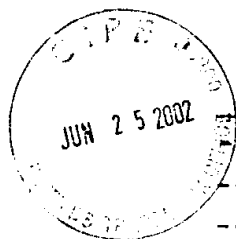
1 -----TTG--AT-----  
1 -----TTGA-----  
1 -----GA-----  
45 **AAAAACCTCCTCCACTCAGTCTTGGATCTCTCTCTCT**  
  
72 TTTCTCTTAATTCCAACCA**GGC**GAATGAATAAAAGGAT-A  
73 TTTCTCTTAATTCCAACCAAGG-AATGAATAAAAGGAT-A  
71 TTTCTCTTAATTCCAACCAAGG-AATGAATAAA**A**AGAT-A  
165 TTTCTCTTAATTCCAACCAAGG-AATGAAT**IAAA**AGAT**IA**  
  
191 TGTACAAATCTAATGGATT**CAG**CAGTAATGGTGATCGGAG  
191 TGTACAAATCTAATGGATT**CAG**CAGTAATGGTGATCGGAG  
189 TGTACAAATCTAATGGATT**CAG**CAGTAATGGTGATCGGAG  
274 TGTACAAATCTAATGGATT**CAG**CAGTAATGGTGATCGGAG  
  
311 AATTC**CG**ACCTTCTACAGTTGCAGCATCGGGGAAAGTCCT  
311 AATTC**CG**ACCTTCTACAGTTGCAGCATCGGGGAAAGTCCT  
309 AAT**C**CCGACCTTCTAC**A**ATTGCAGCATCGGGGAAAGTCCT  
394 AAT**C**CCGACCTTCTACAGTTGCAGCATCGGGGAAAGTCCT  
  
431 CAGCATCAACTGATGTAGATAGTTCAACAATGGAACACGC  
431 CAGCATCAACTGATGTAGATAGTTCAACAATGGAACACGC  
429 CAGCATCAACTGATGTAGATAGTTCAACAATGGAACACGC  
514 CAGCATCAACTGATGT**C**GATAGTTCAACAATGGAACACGC  
  
551 CATCACTACA**ACT**TACAAGAAGGTGGTAAACTGGAGGAGTC  
551 CATCACTACA**ACT**TACAAGAAGGTGGTAAACTGGAGGAGTC  
549 CATCACTACA**ACT**TACAAGAAGGTGGTAAACTGGAGGAGTC  
634 CATCACTACA**ACT**TACAAGAAGGTGGTAAACTGGAGGAGTC  
  
671 TTGGTCAGAA**G**ATTTATGAAATAGACCCCTTTTGACAAA  
671 TTGGTCAGAA**G**ATTTATGAAATAGACCCCTTTTGACAAA  
669 TTGGTCAGAA**G**ATTTATGAAATAGACCCCTTTTGACAAA  
754 TTGGTCAGAA**G**ATTTATGAAATAGACCCCTTTTGACAAA  
  
791 AAG**C**TTTTCTCGTGGTTATGAAAAATGGGTTTCACTCG  
791 AAG**C**TTTTCTCGTGGTTATGAAAAATGGGTTTCACTCG  
789 AAGCTTTTTCTCGTGGTTATGAA**A**GAATGGGTTTCACTCG  
874 AAGCTTTTTCTCGTGGTTATGAAAAATGGGTTTCACTCG

Fig.8  
Sheet 2

Fig.8 SHEET 1



25/75



-----GGGCCTTGAACCTCAGCAATTTGACACTCAGTTAGTTAC  
-----TGGGGCCTTGAACCTCAGCAATTTGACACTCAGTTAGTTAC  
-----TGGGGCCTTGAACCTCAGCAATTTGACACTCAGTTAGTTAC  
**TCACGCTTCTCT**TGGGGCCTTGAACCTCAGCAATTTGACACTCAGTTAGTTAC

GATTTGTAAAAACCCTAAGGAGAGAAGAAGAAAGATGGTGTATA**TA**CTCTCT  
GATTTGTAAAAACCCTAAGGAGAGAAGAAGAAAGATGGTGTATACACTCTCT  
GATTTGTAAAAACCCTAAGGAGAGAAGAAGAAAGATGGTGTATACACTCTCT  
GATTTG-----AAGGAGAGAAGAAGAAAGATGGTGTATACACTCTCT

GAATGCTAATGTTTCTGTATTCTTGAAAAAGCACTCTCTTTCACGGAAGATC  
GAATGCTAATGTTTCTGTATTCTTGAAAAAGCACTCTCTTTCACGGAAGATC  
GAATGCTAAT**TA**TTTCTGTATTCTTGAAAA**TA**CACTCTCTTTCACGGAAGATC  
GAATGCTAATGTTTCTGTATTCTTGAAAAAGCACTCTCTTTCACGGAAGATC

TGTGCCTGGA**AT**CCAGAGTGATAGCTCCTCATCCTCAACAGACCAATTTGAG  
TGTGCCTGGA**AT**CCAGAGTGATAGCTCCTCATCCTCAACAGACCAATTTGAG  
TGTGCCTGGAATCCAGAGTGATAGCTCCTCATCCTCAACAG**AT**CAATTTGAG  
TGT**TA**CCTGGAATCCAGAGTGATAGCTCCTCATCCTCAACAGACCAATTTGAG

TAGCCAGATTAAAACTGAGAACGATGACGTTGAGCCGTCAAGTGATCTTACA  
TAGCCAGATTAAAACTGAGAACGATGACGTTGAGCCGTCAAGTGATCTTACA  
TAGCCAGATTAAAACTGAGAACGATGACGTTGAGCCGTCAAGTGATCTTACA  
TAGCCAGATTAAAACTGAGAACGATGACGTTGAGCCGTCAAGTGATCTTACA

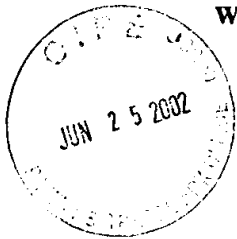
TAAACATTAAATACTTCTGAAGAGACAATTATTGATGAATCTGATAGGATC  
TAAACATTAAATACTTCTGAAGAGACAATTATTGATGAATCTGATAGGATC  
TAAACATTAAATACTTCTGAAGAGACAATTATTGATGAATCTGATAGGATC  
TAAACATTAAATACTTCTGAAGAGACAATTATTGATGAATCTGATAGGATC

CTATCGTCAACACCTTGATTACAGGTATTCACAGTACAAGAACTGAGGGAG  
CTATCGTCAACACCTTGATTACAGGTATTCACAGTACAAGAACTGAGGGAG  
CTATCGTCAACACCTTGATTACAGGTATTCACAGTACAAGAACTGAGGGAG  
CTATCGTCAACACCTTGATTACAGGTATTCACAGTACAAGAA**AT**GAGGGAG

TAGTGCTACAGGTATCACTTACCGTGAGTGGGCTCCTGGTGCCAGTCAGCT  
TAGTGCTACAGGTATCACTTACCGTGAGTGGGCT**CT**TGGTGCCAGTCAGCT  
TAGTGCTACAGGTATCACTTACCGTGAGTGGGCTCCTGGTGCCAGTCAGCT  
TAGTGCTACAGGTATCACTTACCGTGAGTGGGCTCCTGGTGCCAGTCAGCT

Fig. 8  
Sheet  
3

Fig. 8 SHEET 2



26/75

ACTCCTATCACTTATCAGATCTCTATTT 11con.seq  
ACTCCTATCACTTATCAGATCTCTATTT 19con.seq  
ACTCCTATCACTTATCAGATCTCTATTT 10con.seq  
ACTCCTATCACTTATCAGATCTCTATTT psbe2con.seq

GGAGTTCGTTTTCTACTGTTCCATCAG 11con.seq  
GGAGTTCGTTTTCTACTGTTCCATCAG 19con.seq  
GGAGTTCGTTTTCTACTGTTCCATCAG 10con.seq  
GGAGTTCGTTTTCTACTGTTCCATCAG psbe2con.seq

TTGGCTGAAAAGTCTTCTTACAATTCCG 11con.seq  
TTGGCTGAAAAGTCTTCTTACAATTCCG 19con.seq  
TTGGCTGAAAAGTCTTCTTACAATTCCG 10con.seq  
TTGGCTGAAAAGTCTTCTTACAATTCCG psbe2con.seq

TTCACTGAGACATCTCCAGAAAATTCCC 11con.seq  
TTCACTGAGACATCTCCAGAAAATTCCC 19con.seq  
TTCACTGAGACATCTCCAGAAAATTCCC 10con.seq  
TTCACTGAGACATCTCCAGAAAATTCCC psbe2con.seq

GGAAGTGTGGAAGAGCTGGATTTTGCTT 11con.seq  
GGAAGTGTGGAAGAGCTGGATTTTGCTT 19con.seq  
GGAAGTGTGGAAGAGCTGGATTTTGCTT 10con.seq  
GGAAGTGTGGAAGAGCTGGATTTTGCTT psbe2con.seq

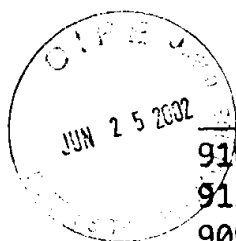
AGAGAGAGGGGCATCCCTCCACCTGGAC 11con.seq  
AGAGAGAGGGGCATCCCTCCACCTGGAC 19con.seq  
AGAGAGAGGGGCATCCCTCCACCTGGAC 10con.seq  
AGAGAGAGGGGCATCCCTCCACCTGGAC psbe2con.seq

GCAATTGACAAGTATGAGGGTGGTTTGG 11con.seq  
GCAATTGACAAGTATGAGGGTGGTTTGG 19con.seq  
GCAATTGACAAGTATGAGGGTGGTTTGG 10con.seq  
GCAATTGACAAGTATGAGGGTGGTTTGG psbe2con.seq

GCCCTCATTGGAGATTTCAACAATTGGG 11con.seq  
GCCCTCATTGGAGATTTCAACAATTGGG 19con.seq  
GCCCTCATTGGAGATTTCAACAATTGGG 10con.seq  
GCCCTCATTGGAGATTTCAACAATTGGG psbe2con.seq

Fig. 8  
SHEET 3

27/75



910 ACGCAAATGCTGACATTATGACTCGGAATGAATTTGGTGTC  
911 ACGCAAATGCTGACATTATGACTCGGAATGAATTTGGTGTC  
909 ACGCAAATGCTGACATTATGACTCGGAATGAATTTGGTGTC  
994 ACGCAAATGCTGACATTATGACTCGGAATGAATTTGGTGTC

1030 CTCCATCAGGTGTTAAGGATTCCATTCTTGCTTGGATCAAC  
1031 CTCCATCAGGTGTTAAGGATTCCATTCTTGCTTGGATCAAC  
1029 CTCCATCAGGTGTTAAGGATTCCATTCTTGCTTGGATCAAC  
1114 CTCCATCAGGTGTTAAGGATTCCATTCTTGCTTGGATCAAC

1150 AACACCCACGGCCAAAGAAACCAAAGTCGCTGAGAATATAT  
1151 AACACCCACGGCCAAAGAAACCAAAGTCGCTGAGAATATAT  
1149 AACACCCACGGCCAAAGAAACCAAAGTCGCTGAGAATATAT  
1234 AACACCCACGGCCAAAGAAACCAAAGTCGCTGAGAATATAT

1270 TAAAAAA-GCTTGGGTACAATGCGGTGCAATTATGGCTAT  
1271 TAAAAAA-GCTTGGGTACAATGCGGTGCAATTATGGCTAT  
1269 TAAAAAA-GCTTGGGTACAATGCGGTGCAATTATGGCTAT  
1354 TAAAAAA-GCTTGGGTACAATGCGGTGCAATTATGGCTAT

1389 GACGACCTTAAGTCTTTGATTGATAAAGCTCATGAGCTAGG  
1390 GACGACCTTAAGTCTTTGATTGATAAAGCTCATGAGCTAGG  
1389 GACGACCTTAAGTCTTTGATTGATAAAGCTCATGAGCTAGG  
1473 GACGACCTTAAGTCTTTGATTGATAAAGCTCATGAGCTAGG

1509 GATAGTTGTTACTTTCACTCTGGAGCTCGTGGTTATCATTG  
1510 GATAGTTGTTACTTTCACTCTGGAGCTCGTGGTTATCATTG  
1509 GATAGTTGTTACTTTCACTCTGGAGCTCGTGGTTATCATTG  
1593 GATAGTTGTTACTTTCACTCTGGAGCTCGTGGTTATCATTG

1628 GATGAGTTCAAATTTGATGGATTTAGATTGATGGTGTGAC  
1630 GATGAGTTCAAATTTGATGGATTTAGATTGATGGTGTGAC  
1629 GATGAGTTCAAATTTGATGGATTTAGATTGATGGTGTGAC  
1713 GATGAGTTCAAATTTGATGGATTTAGATTGATGGTGTGAC

1748 GTGGATGCTGTTGTGTATCTGATGCTGGTCAACGATCTTAT  
1750 GTGGATGCTGTTGTGTATCTGATGCTGGTCAACGATCTTAT  
1749 GTGGATGCTGTTGTGTATCTGATGCTGGTCAACGATCTTAT  
1833 GTGGATGCTGTTGTGTATCTGATGCTGGTCAACGATCTTAT

Fig. 8  
Sheet 5

Fig. 8  
SHEET 4

28/75

JUN 25 2002

TGGGAGATTTTCTGCCAAATAATGTGGATGGTTCTCCTGCAATTC  
TGGGAGATTTTCTGCCAAATAATGTGGATGGTTCTCCTGCAATTC  
TGGGAGATTTTCTGCCAAATAATGTGGATGGTTCTCCTGCAATTC  
TGGGAGATTTTCTGCCAAATAATGTGGATGGTTCTCCTGCAATTC

TACTCTTTACAGCTTCCTGATGAAATTCATATAATGGAATATATT  
TACTCTTTACAGCTTCCTGATGAAATTCATATAATGGAATGATT  
TACTCTTTACAGCTTCCTGATGAAATTCATATAATGGAATATATT  
TACTCTTTACAGCTTCCTGATGAAATTCATATAATGGAATATATT

GAATCTCATATTGGAATGAGTAGTCCGGAGCCTAAAATTAACATCAT  
GAATCTCATATTGGAATGAGTAGTCCGGAGCCTAAAATTAACATCAT  
GAATCTCATATTGGAATGAGTAGTCCGGAGCCTAAAATTAACATCAT  
GAATCTCATATTGGAATGAGTAGTCCGGAGCCTAAAATTAACATCAT

TCAAGAGCATTCTTATTATGCTAGTTTTGGTTATCATGTCACAAAT  
TCAAGAGCATTCTTATTATGCTAGTTTTGGTTATCATGTCACAAAT  
TCAAGAGCATTCTTATTATGCTAGTTTTGGTTATCATGTCACAAAT  
TCAAGAGCATTCTTATTATGCTAGTTTTGGTTATCATGTCACAAAT

AATTGTTGTTCTCATGGACATTGTTACAGCCATGCATCAAATAAT  
AATTGTTGTTCTCATGGACATTGTTACAGCCATGCATCAAATAAT  
AATTGTTGTTCTCATGGACATTGTTACAGCCATGCATCAAATAAT  
AATTGTTGTTCTCATGGACATTGTTACAGCCATGCATCAAATAAT

GATGTGGGATTCCGCCTCTTTAACTATGGAACTGGGAGGTACTT  
GATGTGGGATTCCGCCTCTTTAACTATGGAACTGGGAGGTACTT  
GATGTGGGATTCCGCCTCTTTAACTATGGAACTGGGAGGTACTT  
GATGTGGGATTCCGCCTCTTTAACTATGGAACTGGGAGGTACTT

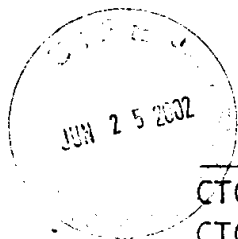
ATCAATGATGTATACTCACCACGGATTATCGGTGGGATTCACTGGG  
ATCAATGATGTATACTCACCACGGATTATCGGTGGGATTCACTGGG  
ATCAATGATGTATACTCACCACGGATTATCGGTGGGATTCACTGGG  
ATCAATGATGTATACTCACCACGGATTATCGGTGGGATTCACTGGG

TCATAGGCTTTTCCCAGATGCAATTACCATTGGTGAAGATGTTAGC  
TCATGGGCTTTTCCCAGATGCAATTACCATTGGTGAAGATGTTAGC  
TCATGGGCTTTTCCCAGATGCAATTACCATTGGTGAAGATGTTAGC  
TCATGGGCTTTTCCCAGATGCAATTACCATTGGTGAAGATGTTAGC

Fig. 8  
Sheet 6

Fig. 8  
SHEET 5

29/75



CTCATGGGTCCAGAGTGAAGATACGTATGGACA 11con.seq  
CTCATGGGTCCAGAGTGAAGATACGTATGGACA 19con.seq  
CTCATGGGTCCAGAGTGAAGATACGTATGGACA 10con.seq  
CTCATGGGTCCAGAGTGAAGATACGATGGACA psbe2con.seq

ATGATCCACCCGAAGAGGAGAGGTATATCTTCC 11con.seq  
ATGATCCACCCGAAGAGGAGAGGTATATCTTCC 19con.seq  
ATGATCCACCCGAAGAGGAGAGGTATATCTTCC 10con.seq  
ATGATCCACCCGAAGAGGAGAGGTATCTTCC psbe2con.seq

ACGTGAATTTTAGAGATGAAGTTCTTCCTCGCA 11con.seq  
ACGTGAATTTTAGAGATGAAGTTCTTCCTCGCA 19con.seq  
ACGTGAATTTTAGAGATGAAGTTCTTCCTCGCA 10con.seq  
ACGTGAATTTTAGAGATGAAGTTCTTCCTCGCA psbe2con.seq

TTTTTTGCACCAAGCAGCCGTTTTGGAACGCCC 11con.seq  
TTTTTTGCACCAAGCAGCCGTTTTGGAACGCCC 19con.seq  
TTTTTTGCACCAAGCAGCCGTTTTGGAACGCCC 10con.seq  
TTTTTTGCACCAAGCAGCCGTTTTGGAACGCCC psbe2con.seq

ACTTTAGATGGACTGAACATGTTTGACGGCACC 11con.seq  
ACTTTAGATGGACTGAACATGTTTGACGACC 19con.seq  
ACTTTAGATGGACTGAACATGTTTGACGGCACA 10con.seq  
ACTTTAGATGGACTGAACATGTTTGACGGCACA psbe2con.seq

AGGTATCTTCTCTCAAATGCGAGATGGTGGTTG 11con.seq  
AGGTATCTTCTCTCAAATGCGAGATGGTGGTTG 19con.seq  
AGGTATCTTCTCTCAAATGCGAGATGGTGGTTG 10con.seq  
AGGTATCTTCTCTCAAATGCGAGATGGTGGTTG psbe2con.seq

AACTACGAGGAATACTTTGGACTIONGCAACTGAT 11con.seq  
AACTACGAGGAATACTTTGGACTIONGCAACTGAT 19con.seq  
AACTACGAGGAATACTTTGGACTIONGCAACTGAT 10con.seq  
AACTACGAGGAATACTTTGGACTIONGCAACTGAT psbe2con.seq

GGAATGCCGACATTTTGTATTCCCGTTCAAGAT 11con.seq  
GGAATGCCGACATTTTGTATTCCCGTTCAAGAT 19con.seq  
GGAATGCCGACATTTTGTATTCCCGTTCAAGAT 10con.seq  
GGAATGCCGACATTTTGTATTCCCGTTCAAGAT psbe2con.seq

Fig. 8  
SHEET 6

1

1868 GGGGGTGTTGGCTTTGACTATCGGCTGCATATGGCAATTGC  
1870 GGGGGTGTTGGCTTTGACTATCGGCTGCATATGGCAATTGC  
1869 GGGGGTGTTGGCTTTGACTATCGGCTGCATATGGCAATTGC  
1953 GGGGGTGTTGGCTTTGACTATCGGCTGCATATGGCAATTGC

1988 AGATGGTCGGAAAAGTGTGTTTCATACGCTGAAAGTCATGA  
1990 AGATGGTCGGAAAAGTGTGTTTCATACGCTGAAAGTCATGA  
1989 AGATGGTCGGAAAAGTGTGTTTCATACGCTGAAAGTCATGA  
2073 AGATGGTCGGAAAAGTGTGTTTCATACGCTGAAAGTCATGA

2108 CCGGCAACATCATTAAATAGATCGTGGGATAGCATTGCACAA  
2110 CCGTCAACATCATTAAATAGATCGTGGGATAGCATTGCACAA  
2109 CCGTCAACATCATTAAATAGATCGTGGGATAGCATTACACAA  
2193 CCGTCAACATCATTAAATAGATCGTGGGATAGCATTGCACAA

2228 TGGATTGATTTCCCTAGGGCTGACCCACACCTTCTGATGG  
2230 TGGATTGATTTCCCTAGGGCTGAACAACACCTCTCTGATGG  
2229 TGGATTGATTTCCCTAGGGCTGAACAACACCTCTCTGATGG  
2313 TGGATTGATTTCCCTAGGGCTGAACAACACCTCTCTGATGG

2348 TACCAATGGGTTACAAGAATTTGACTGGGCTATGCAGTATCT  
2350 TACCGTGGGTTGCAAGAATTTGACCGGCTATGCAGTATCT  
2349 TACCGTGGGTTGCAAGAATTTGACCGGGCTATGCAGTATCT  
2433 TACCGTGGGTTGCAAGAATTTGACCGGGCTATGCAGTATCT

2468 GAAA**G**AGGAAACCTAGTTTT**G**TCCTTTAATTTTCACTGGAC  
2470 GAAAAAGGAAACCTAGTTTTGTCTTTAATTTTCACTGGAC  
2469 GAAAAAGGAAACCTAGTTTTGTCTTTAATTTTCACTGGAC  
2553 GAAAAAGGAAACCTAGTTTTGTCTTTAATTTTCACTGGAC

2588 TTTGGTGGCTTCGGGAGAATTGATCATAATGCCGAATATTT  
2590 TTTGGTGGCTTCGGGAGAATTGATCATAATGCCGAATATTT  
2589 TTTGGTGGCTTCGGGAGAATTGATCATAATGCCGAATATTT  
2673 TTTGGTGGCTTCGGGAGAATTGATCATAATGCCGAATGTTT

2708 CTAGTAGACAAA**CTAGAAG**-----  
2710 CTAGTAGACAAAGAAGAAGAAGAAGAAGAAG**AAGAAGA**  
2709 CTAGTAGACAAAGAAGAAGAAGAAGAAGAAG-----  
2793 CTAGTAGACAAAGAAGAAGAAGAAGAAG**---**-----

Fig.8  
Sheet 8

Fig. 8  
SHEET 7

31/75

TGATAAATGGATTGAGTTGCTCAAGAAACGGGATGAGGATTGGAGA  
TGATAAA[GGATTGAGTTGCTCAAGAAACGGGATGAGGATTGGAGA  
TGATAAATGGATTGAGTTGCTCAAGAAACGGGATGAGGATTGGAGA  
TGATAAATGGATTGAGTTGCTCAAGAAACGGGATGAGGATTGGAGA

TCAAGCTCTAGTCGGTGATAAACTATAGCATTCTGGCTGATGGAC  
TCAAGCTCTAGTCGGTGATAAACTATAGCATTCTGGCTGATGGAC  
TCAAGCTCTAGTCGGTGATAAACTATAGCATTCTGGCTGATGGAC  
TCAAGCTCTAGTCGGTGATAAACTATAGCATTCTGGCTGATGGAC

GATGATTAGGCTTGTAACCTATGGGATTAGGAGGAGAAGGGTACCTA  
GATGATTAGGCTTGTAACCTATGGGATTAGGAGGAGAAGGGTACCTA  
GATGATTAGGCTTGTAACCTATGGGATTAGGAGGAGAAGGGTACCTA  
GATGATTAGGCTTGTAACCTATGGGATTAGGAGGAGAAGGGTACCTA

CTCAGTAATTCCTCGGAAACCAATTCAGTTATGATAAATGCAGACGG  
CTCAGTAAT[CTCGGAAACCAATTCAGTTATGATAAATGCAGACGG  
CTCAGTAATTCCT[AGAAACCAATTCAGTTATGATAAATGCAGACGG  
CTCAGTAATTCCTCGGAAACCAATTCAGTTATGATAAATGCAGACGG

TGAAGATAAATATGAGTTTATGACTTCAGAACACCAGTTCATATCA  
TGAAGATAAATATGAGTTTATGACTTCAGAACACCAGTTCATATCA  
TGAAGATAAATATGAGTTTATGACTTCAGAACACCAGTTCATATCA  
TGAAGATAAATATGAGTTTATGACTTCAGAACACCAGTTCATATCA

AAA[AGCTATTCAGACTATCGCATAGGCTGCCTGAAGCCTGGAAAA  
AAAAAGCTATTCAGACTATCGCATAG[CTGCCTGAAGCCTGGAAAA  
AAAA[GGCTATTCAGACTATCGCATAGGCTGCCTGAAGCCTGGAAAA  
AAAAAGCTATTCAGACTATCGCATAGGCTG[CTGAAGCCTGGAAAA

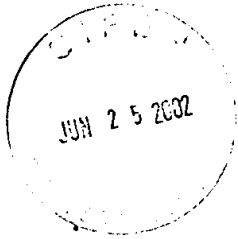
CACCT[CTGAAGGAT[GTATGATGATCGTCCT[GTTCATTATGGTG  
CACCTTTGAAGGATGGTATGATGATCGTCCTCGTTCAATTATGGTG  
CACCTTTGAAGGATGGTATGATGATCGTCCTCGTTCAATTATGGTG  
CACCTTTGAAGGATGGTATGATGATCGTCCTCGTTCAATTATGGTG

-----TAGCAGTAGTAGAAGAA[CCCA[TTG-----AAGAATGAACG  
[AGAAGTAGCAG[AGTAGAAGAAGTAGTAGTAGAAGAAGAATGAACG  
-----TAGCAGTAGTAGAAGAAGTAGTAGTAGAAGAAGAATGAACG  
-----TAGCAGTAGTAGAAGAAGTAGTAGTAGAAGAAGAATGAACG

Fig. 8  
Sheet 9

Fig. 8  
SHEET 8

32/75



GTGGGTGATATTGTTTCATACACTGACAAATAGA 11con.seq  
 GTGGGTGATATTGTTTCATACACTGACAAATAGA 19con.seq  
 GTGGGTGATATTGTTTCATACACTGACAAATAGA 10con.seq  
 GTGGGTGATATTGTTTCATACACTGACAAATAGA psbe2con.seq

AAGGATATGTATGATTTTATGGCTCTGGATAGA 11con.seq  
 AAGGATATGTATGATTTTATGGCTCTGGATAGA 19con.seq  
 AAGGATATGTATGATTTTATGGCTCTGGATAGA 10con.seq  
 AAGGATATGTATGATTTTATGGCTTTGGATAGA psbe2con.seq

AATTTTCATGGGAAATGAATTCGGCCACCCTGAG 11con.seq  
 AATTTTCATGGGAAATGAATTCGGCCACCCTGAG 19con.seq  
 AATTTTCATGGGAAATGAATTCGGCCACCCTGAG 10con.seq  
 AATTTTCATGGGAAATGAATTCGGCCACCCTGAG psbe2con.seq

AGATTTGACCTGGGAGATGCAGAATATTTAAGA 11con.seq  
 AGATTTGACCTGGGAGATGCAGAATATTTAAGA 19con.seq  
 AGATTTGACCTGGGAGATGCAGAATATTTAAGA 10con.seq  
 AGATTTGACCTGGGAGATGCAGAATATTTAAGA psbe2con.seq

CGAAAGGATGAAGGAGATAGGATGATTGTATTT 11con.seq  
 CGAAAGGATGAAGGAGATAGGATGATTGTATTT 19con.seq  
 CGAAAGGATGAAGGAGATAGGATGATTGTATTT 10con.seq  
 CGAAAGGATGAAGGAGATAGGATGATTGTATTT psbe2con.seq

TACAAGGTTCTTTGGACTCAGATGATCCACTT 11con.seq  
 TACAAGGTTGCCTTGGACTCAGATGATCCACTT 19con.seq  
 TACAAGGTTGCCTTGGACTCAGATGATCCACTT 10con.seq  
 TACAAGGTTGCCTTGGACTCAGATGATCCACTT psbe2con.seq

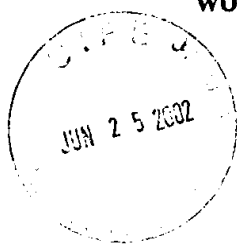
TATGCACCTAGTAGAACAGCAGTGGTCTATGCA 11con.seq  
 TATGCACCTTGTAAACAGCAGTGGTCTATGCA 19con.seq  
 TATGCACCTAGTAGAACAGCAGTGGTCTATGCA 10con.seq  
 TATGCACCTAGTAGAACAGCAGTGGTCTATGCA psbe2con.seq

AACTTGTGATCGCGTTGAAAGATTTGAACGTTA 11con.seq  
 AACTTGTGATCGCGTTGAAAGATTTGAACG--- 19con.seq  
 AACTTGTGATCGCGTTGAAAGATTTGAACG--- 10con.seq  
 AACTTGTGATCGCGTTGAAAGATTTGAACG--- psbe2con.seq

Fig. 8  
 SHEET 9



33/75



2795 **CTTGGTCATCC**ACATAGAGCTTCTTGAC-----  
 2827 -----CTACATAGAGCTTCTTGACGTATCTGGCAATAT  
 2814 -----CCACATAGAGCTTCTTGACGTATCTGGCAATAT  
 2895 -----CTACATAGAGCTTCTTGACGTATCTGGCAATAT  
  
 2898 AGAGATGAAGTGCTGAACAAA--CATATGTAAAATCGATGAA  
 2937 AGAGATGAAGTGCTGAACAAA--CATATGTAAAATCGATGAA  
 2924 AGAGATGAAGTGCTGAACAAA**AA**CATATGTAAAATCGATGAA  
 3005 AGAGATGAAGTGCTGAACAAA--CATATGTAAAATCGATGAA  
  
 2975  
 3012  
 3003  
 3123 **GCCCACTAGAAATCAATTATGTGAGACCTAAAAACAATAAC**

Fig. 8  
Sheet 11

Fig. 8 SHEET 10

34/75

JUN 25 2002

---ATCAGTCTTGGCGGAATTG CATGTGACAA CAAGGTTTGCACTT  
 TGCATCAGTCTTGGCGGAATTT CATGTGACAC -AAGGTTTGCAATT  
 TGCATAGTCTTGGCGGAATTT CATGTGACAA -CAGGTTTGCAATT  
 TGCATCAGTCTTGGCGGAATTT CATGTGACAA -AAGGTTTGCAATT

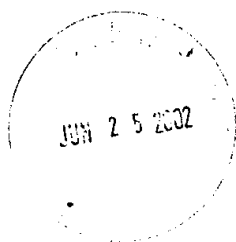
TTTATGTCGAATGCTGGGACGATCGAATTCCTGCAGCC  
 TTTATGTCGAATGCTGGGACGATCGAATTCCTGCAG  
 TTTATGTCGAATGCTGGGACGATCGAATTCCTGCAGCC  
 TTTATGTCGAATGCTGGGACGGGCTTCAGCAGGTTTGCTTAGTGA

Fig. 8  
Sheet 12

CATAAAATGGAAATAGTGCTGATCTAATGATGTTTTAANCCNNNNA

Fig. 8 SHEET 11

35/75



CTTTCCACTATTAGTAGT**CCAC**CGATATACGC 11con.seq  
CTTTCCACTATTAGTAGTGCAACGATATACGC 19con.seq  
CTTTCCACTATTAGTAGTGCAACGATATACGC 10con.seq  
CTTTCCACTATTAGTAGTGCAACGATATACGC psbe2con.seq

11con.seq

19con.seq

10con.seq

**GTTCTGTAAATTGTCATCTCTTTANATGTACA** psbe2con.seq

11con.seq

19con.seq

10con.seq

**AAAAAAAAAAAAAAAACTCGAG**

psbe2con.seq

Fig. 8 SHEET 12

36/75

JUN 25 2002

GGATGCTAATGTTTCTGTATTCTTGAAAAAGCACTCTCTTTCACGG

CCTACGATTACAAAGACATAAGAACTTTTTTCGTGAGAGAAAGTGCC

A N V S V F L K K H S L S R

TTCTACAGTTGCAGCATCGGGGAAAGTCCTTGTGCCTGGAAYCCAG

AAGATGTCAACGTCGTAGCCCCCTTTCAGGAACACGGACCTTRGGTC

S T V A A S G K V L V P G ? Q

GACATCTCCAGAAAATTCCCCAGCATCAACTGATGTAGATAGTTCA

CTGTAGAGGTCTTTTAAGGGGTCGTAGTTGACTACATCTATCAAGT

T S P E N S P A S T D V D S S

TGAGCCGTCAAGTGATCTTACAGGAAGTGTTGAAGAGCTGGATTTT

ACTCGGCAGTTCACTAGAATGTCCTTCACAACTTCTCGACCTAAAA

E P S S D L T G S V E E L D F

TAAACATTAAATACTTCTGAAGAGACAATTATTGATGAATCTGAT

ATTTTGTAATTTATGAAGACTTCTCTGTTAATAACTACTTAGACTA

K T L N T S E E T I I D E S D

Hinc II

GATTTATGAAATAGACCCCCTTTTGACAACTATCGTCAACACCTT

CTAAATACTTTATCTGGGGGAAACTGTTTGATAGCAGTTGTGGAA

I Y E I D P L L T N Y R Q H L

Fig.9  
Sheet  
2

Fig.9 SHEET 1

JUN 25 2002

37/75

Bgl II

AAGATCTTGGCTGAAAAGTCTTCTTACAATTCCGAATCCCGACC 90  
TTCTAGAACCGACTTTTCAGAAGAATGTTAAGGCTTAGGGCTGG  
K I L A E K S S Y N S E S R P

AGTGATAGCTCCTCATCCTCAACAGACCAATTTGAGTTCACTGA 180  
TCACTATCGAGGAGTAGGAGTTGTCTGGTTAAACTCAAGTGACT  
S D S S S S S T D Q F E F T E

ACAATGGAACACGCTAGCCAGATTAAAACTGAGAACGATGACGT 270  
TGTTACCTTGTGCGATCGGTCTAATTTTGACTCTTGCTACTGCA  
T M E H A S Q I K T E N D D V

GCTTCATCACTACAACCTACAAGAAGGTGGTAAACTGGAGGAGTC 360  
CGAAGTAGTGATGTTGATGTTCTTCCACCATTGACCTCCTCAG  
A S S L Q L Q E G G K L E E S

AGGATCAGAGAGAGGGGCATCCCTCCACCTGGACTTGGTCAGAA 450  
TCCTAGTCTCTCTCCCCGTAGGGAGGTGGACCTGAACCAGTCTT  
R I R E R G I P P P G L G Q K

GATTACAGGTATTCACAGTACAAGAACTGAGGGAGGCAATTGA 540  
CTAATGTCCATAAGTGTCATGTTCTTTGACTCCCTCCGTAACT  
D Y R Y S Q Y K K L R E A I D

Fig. 9 SHEET 2

38/75

Hind III

CAAGTATGAGGGTGGTTTGGGAAGCTTTTTCTCGTGGTTATGAAAAA  
GTTCATACTCCCAACAACTTCGAAAAAGAGCACCAATACTTTTT  
K Y E G G L E A F S R G Y E K

Pvu II

GGCTCCTGGTGCCAGTCAGCTGCCCTCATTGGAGATTTCACAAT  
CCGAGGACCACGGGTCAGTCGACGGGAGTAACCTCTAAAGTTGTTA  
A P G A Q S A A L I G D F N N

CTGGGAGATTTTTCTGCCAAATAATGTGGATGGTTCTCCTGCAATT  
GACCCTCTAAAAAGACGGTTTATTACACCTACCAAGAGGACGTAA  
W E I F L P N N V D G S P A I

TGTTAAGGATTCCATTCCTGCTTGGATCAACTACTCTTTACAGCTT  
ACAATTCCTAAGGTAAGGACGAACCTAGTTGATGAGAAATGTCGAA  
V K D S I P A W I N Y S L O L

AGAGGAGAGGTATRTCTTCCAACACCCACGGCCAAAGAAACCAAAG  
TCTCCTCTCCATAYAGAAGGTTGTGGGTGCCGGTTTCTTTGGTTTC  
E E R Y ? F Q H P R P K K P K

Fig.9  
Sheet  
4

Fig.9 SHEET 3

39/75

JUN 25 2002

ATGGGTTTCACTCGTAGTGCTACAGGTATCACTTACCGTGAGTG 630  
TACCCAAAGTGAGCATCACGATGTCCATAGTGAATGGCACTCAC  
M G F T R S A T G I T Y R E W

TGGGACGCAAATGCTGACATTATGACTCGGAATGAATTTGGTGT 720  
ACCCTGCGTTTACGACTGTAATACTGAGCCTTACTTAAACCACA  
W D A N A D I M T R N E F G V

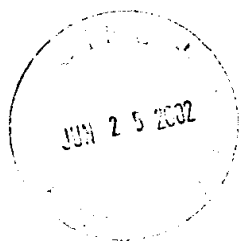
CCTCATGGGTCCAGAGTGAAGATACGYATGGACACTCCATCAGG 810  
GGAGTACCCAGGTCTCACTTCTATGCRTACCTGTGAGGTAGTCC  
P H G S R V K I R M D T P S G

CCTGATGAAATTCCATATAATGGAATATATTATGATCCACCCGA 900  
GGACTACTTTAAGGTATATTACCTTATATAATACTAGGTGGGCT  
P D E I P Y N G I Y Y D P P E

TCGCTGAGAATATATGAATCTCATATTGGAATGAGTAGTCCGGA 990  
AGCGACTCTTATATACTTAGAGTATAACCTTACTCATCAGGCCT  
S L R I Y E S H I G M S S P E

Fig. 9 SHEET 4

40/75



Xmn I

GCCTAAAATTAAC TCATACGTGAATTTTAGAGATGAAGTTCTTCCT

CGGATTTTAATTGAGTATGCACTTAAAATCTCTACTTCAAGAAGGA

P K I N S Y V N F R D E V L P

TCAAGAGCATTCTTATTATGCTAGTTTTGGTTATCATGTCACAAAT

AGTTCTCGTAAGAATAATACGATCAAAACCAATAGTACAGTGTTTA

Q E H S Y Y A S F G Y H V T N

GTCTTTGATTGATAAAGCTCATGAGCTAGGAATTGTTGTTCTCATG

CAGAAACTAACTATTTTCGAGTACTCGATCCTTAACAACAAGAGTAC

S L I D K A H E L G I V V L M

GAACATGTTTGACGGCACAGATAGTTGTTACTTTCACTCTGGAGCT

CTTGTACAAACTGCCGTGTCTATCAACAATGAAAGTGAGACCTCGA

N M F D G T D S C Y F H S G A

AAACTGGGAGGTACTTAGGTATCTTCTCTCAAATGCGAGATGGTGG

TTTGACCCTCCATGAATCCATAGAAGAGAGTTTACGCTCTACCACC

N W E V L R Y L L S N A R W W

ATCAATGATGTATACTCACCACGGATTATCGGTGGGATTCACTGGG

TAGTTACTACATATGAGTGGTGCCTAATAGCCACCCTAAGTGACCC

S M M Y T H H G L S V G F T G

Fig.9  
Sheet  
6

Fig.9 SHEET 5

SUBSTITUTE SHEET (RULE 26)



41/75

JUN 25 2002

CGCATAAAAAASCTTGGGTACAATGCGGTGCAAATTATGGCTAT 1080  
GCGTATTTTTTSGAACCCATGTTACGCCACGTTTAATACCGATA  
R I K ? L G Y N A V Q I M A I

TTTTTTGCACCAAGCAGCCGTTTTGGAACGCCCGACGACCTTAA 1170  
AAAAAACGTGGTTCGTCGGCAAACCTTGCGGGCTGCTGGAATT  
F F A P S S R F G T P D D L K

GACATTGTTACAGCCATGCATCAAATAATACTTTAGATGGACT 1260  
CTGTAACAAGTGTCGGTACGTAGTTTATTATGAAATCTACCTGA  
D I V H S H A S N N T L D G L

Sac I

CGTGGTTATCATTGGATGTGGGATTCCCGCCTCTTTAACTATGG 1350  
GCACCAATAGTAACCTACACCCTAAGGGCGGAGAAATTGATACC  
R G Y H W M W D S R L F N Y G

TTGGATGAGTTCAAATTTGATGGATTTAGATTTGATGGTGTGAC 1440  
AACCTACTCAAGTTTAAACTACCTAAATCTAAACTACCACTG  
L D E F K F D G F R F D G V T

AACTACGAGGAATACTTTGGACTCGCAACTGATGTGGATGCTGT 1530  
TTGATGCTCCTTATGAAACCTGAGCGTTGACTACACCTACGACA  
N Y E E Y F G L A T D V D A V

Fig. 9 SHEET 6

42/75

Hinc II

TGTGTATCTGATGCTGGTCAACGATCTTATTCACGGGCTTTTCCCA  
ACACATAGACTACGACCAGTTGCTAGAATAAGTGCCCGAAAAGGT  
V Y L M L V N D L I H G L F P

TTGTATTCCCGTTCAAGATGGGGGTGTTGGCTTTGACTATCGGCTG  
AACATAAGGGCAAGTTCTACCCCCACAACCGAAACTGATAGCCGAC  
C I P V Q D G G V G F D Y R L

GGATGAGGATTGGAGAGTGGGTGATATTGTTTCATACACTGACAAAT  
CCTACTCCTAACCTCTCACCCACTATAACAAGTATGTGACTGTTTA  
D E D W R V G D I V H T L T N

TCAAGCTCTAGTCGGTGATAAACTATAGCATYCTGGCTGATGGAC  
AGTTGAGATCAGCCACTATTTTGATATCGTARGACCGACTACCTG  
Q A L V G D K T I A ? W L M D

ATTAATAGATCGTGGGATAGCATTGCACAAGATGATTAGGCTTGTA  
TAATTATCTAGCACCTATCGTAACGTGTTCTACTAATCCGAACAT  
L I D R G I A L H K M I R L V

Fig.9  
Sheet  
8

Fig. 9 SHEET 7

43/75

JUN 25 2002

GATGCAATTACCATTTGGTGAAGATGTTAGCGGAATGCCGACATT 1620  
CTACGTTAATGGTAACCACTTCTACAATCGCCTTACGGCTGTAA  
D A I T I G E D V S G M P T F

Nde I

CATATGGCAATTGCTGATAAATGGATTGAGTTGCTCAAGAAACG 1710  
GTATACCGTTAACGACTATTTACCTAACTCAACGAGTTCTTTGC  
H M A I A D K W I E L L K K R

AGAAGATGGTCGGAAAAGTGTGTTTTCATMCGCTGAAAGTCATGA 1800  
TCTTCTACCAGCCTTTTCACACAAAGTAKGCGACTTTCAGTACT  
R R W S E K C V S ? A E S H D

Hinc II

AAGGATATGTATGATTTTATGGCTCTGGATAGACCGTCAACATC 1890  
TTCCTATACATACTAAAATACCGAGACCTATCTGGCAGTTGTAG  
K D M Y D F M A L D R P S T S

Asp 718

Kpn I

ACTATGGGATTAGGAGGAGAAGGGTACCTAAATTTTCATGGGAAA 1980  
TGATACCCTAATCCTCCTCTTCCCATGGATTAAAGTACCCTTT  
T M G L G G E G Y L N F M G N

Fig. 9 SHEET 8

44/75

EcoR I

TGAATTCGGCCACCCTGAGTGGATTGATTTCCTAGGGCTGARCAA  
ACTTAAGCCGGTGGGACTCACCTAACTAAAGGGATCCCGACTYGT  
E F G H P E W I D F P R A E Q

Ssp I

TGATAAATGCAGACGGAGATTTGACCTGGGAGATGCAGAATATTTA  
ACTATTTACGTCTGCCTCTAAACTGGACCCTCTACGTCTTATAAAT  
D K C R R R F D L G D A E Y L

TGAAGATAAATATGAGTTTATGACTTCAGAACACCAGTTCATATCA  
ACTTCTATTTATACTCAAATACTGAAGTCTTGTGGTCAAGTATAGT  
E D K Y E F M T S E H Q F I S

CCTAGTTTTTGTCTTTAATTTTCACTGGACAAATAGCTATTCAGAC  
GGATCAAAAACAGAAATTAAGTGACCTGTTTATCGATAAGTCTG  
L V F V F N F H W T N S Y S D

GGACTCAGATGATCCACTTTTTTGGTGGCTTCGGGAGAATTGATCAT  
CCTGAGTCTACTAGGTGAAAAACCACCGAAGCCCTCTTAAGTAGTA  
D S D D P L F G G F G R I D H

YCGYYCAATTATGGTGTATGCACCTAGTAGAACAGCAGTGGTCTAT  
RGCRRGTTAATACCACATACGTGGATCATCTTGTGTCGTCACCAGATA  
R ? I M V Y A P S R T A V V Y

NGAAGAATTTT  
NCTTCTTAAAA  
E E F

2531

Fig 9 SHEET 9

SUBSTITUTE SHEET (RULE 26)

Fig 9  
Sheet  
10

45/75

JUN 25 2002

CACCTCTCTGATGGCTCAGTAATTCCCGGAAACCAATTCAGTTA  
GTGGAGAGACTACCGAGTCATTAAGGGCCTTTGGTTAAGTCAAT  
H L S D G S V I P G N Q F S Y

Nco I

AGATACCATGGGTTGCAAGAATTTGACCGGGCTATGCAGTATCT  
TCTATGGTACCCAACGTTCTTAAACTGGCCCGATACGTCATAGA  
R Y H G L Q E F D R A M Q Y L

CGAAAGGATGAAGGAGATAGGATGATTGTATTTGAAARAGGAAA  
GCTTTCCTACTTCCTCTATCCTACTAACATAAACTTTYTCCTTT  
R K D E G D R M I V F E ? G N

TATCGCATAGGCTGCCTGAAGCCTGGAAAATACAAGGTTGGCTT  
ATAGCGTATCCGACGGACTTCGGACCTTTTATGTTCCAACCGAA  
Y R I G C L K P G K Y K V G L

Ssp I

AATGCCGAATATTTACCTCTGAAGGATCGTATGATGATCGYCC  
TTACGGCTTATAAAGTGGAGACTTCCTAGCATACTACTAGCRGG  
N A E Y F T S E G S Y D D R P

GCACTAGTAGACAAANTAGAAGNAGAAGAAGAAGAANCCGN  
CGTGATCATCTGTTTNTATCTTCNTCTTCTTCTTCTTNGGCN  
A L V D K ? E ? E E E E ? ?

Fig. 9 SHEET 10

SUBSTITUTE SHEET (RULE 26)

46/75

JUN 25 2002

	10	20	30
1	-GATGGGG	CCTTGA	ACTCAGCAATTTGACACTCAGT
1	TTGATGGG	-CCTTGA	ACTCAGCAATTTGACACTCAGT
1	TTGATGGG	CCTTGA	ACTCAGCAATTTGACACTCAGT
1	T-	-	-
1	-	-	-
	80	90	100
69	TTTTTCTCTTAATTCCAACCAAGG	-AATGAATAAAAA	A
70	TTTTTCTCTTAATTCCAACCA	GGGGAATGAATAAAAG	
71	TTTTTCTCTTAATTCCAACCAAGG	-AATGAATAAAAG	
7	-	-	AAGAG
1	-	-	-
	150	160	170
138	GAAAGATGGTGTATACACTCTCTGGAGTTCGTTTTCC		
140	GAAAGATGGTGTATAT	ACTCTCTGGAGTTCGTTTTCC	
140	GAAAGATGGTGTATACACTCTCTGGAGTTCGTTTTCC		
33	-	-	TCT
1	-	-	-
	220	230	240
208	CAGCAGTAATGGTGATCGGAGGAATGCTAAT	ATTTCT	
210	CAGCAGTAATGGTGATCGGAGGAATGCTAATGTTTCT		
210	CAGCAGTAATGGTGATCGGAGGAATGCTAATGTTTCT		
48	CA	-	-
1	-	GGATGCTAATGTTTCT	
	290	300	310 *
278	ATCTTGGCTGAAAAGTCTTCTTACAATTCCGAAT	CCC	
280	ATCTTGGCTGAAAAGTCTTCTTACAATTCCGAATTCC		
280	ATCTTGGCTGAAAAGTCTTCTTACAATTCCGAATTCC		
57	ATCTTGGCTGAAAAGTCTTCTTACAATTCCGAATTCC		
50	ATCTTGGCTGAAAAGTCTTCTTACAATTCCGAAT	CCC	*

Fig.10  
Sheet 2

Fig. 10 SHEET 1

JUN 25 2002

47/75

40	50	60	70	
TAGTTACACTGCCATCACTTATCAGATCTCTAT				10con. seq
TAGTTACACTCCTATCACTTATCAGATCTCTAT				11con. seq
TAGTTACACTCCTATCACTTATCAGATCTCTAT				19con. seq
-----CATTA-----				86CON. SEQ
-----				pcrsbe2con. seq
110	120	130	140	
GATAGATTTGTAAAAACCCTAAGGAGAGAAGAA				10con. seq
GATAGATTTGTAAAAACCCTAAGGAGAGAAGAA				11con. seq
GATAGATTTGTAAAAACCCTAAGGAGAGAAGAA				19con. seq
GAGAAATT-----AACTATGAGAGGA-----				86CON. SEQ
-----				pcrsbe2con. seq
180	190	200	210	
TACTGTTCCATCAGTGTACAAATCTAATGGATT				10con. seq
TACTGTTCCATCAGTGTACAAATCTAATGGATT				11con. seq
TACTGTTCCATCAGTGTACAAATCTAATGGATT				19con. seq
CACCAT--CACCA-----T				86CON. SEQ
-----				pcrsbe2con. seq
250	260	270	280	
GTATTCTTGAAAAAACACTCTCTTTCACGGAAG				10con. seq
GTATTCTTGAAAAAGCACTCTCTTTCACGGAAG				11con. seq
GTATTCTTGAAAAAGCACTCTCTTTCACGGAAG				19con. seq
-----CATGG--G				86CON. SEQ
GTATTCTTGAAAAAGCACTCTCTTTCACGGAAG				pcrsbe2con. seq
320	330	340	350	
GACCTTCTACAAATTGCAGCATCGGGGAAAGTCC				10con. seq
GACCTTCTACAGTTGCAGCATCGGGGAAAGTCC				11con. seq
GACCTTCTACAGTTGCAGCATCGGGGAAAGTCC				19con. seq
GACCTTCTACAGTTGCAGCATCGGGGAAAGTCC				86CON. SEQ
GACCTTCTACAGTTGCAGCATCGGGGAAAGTCC				pcrsbe2con. seq

Fig. 10 SHEET 2

48/75

JUN 25 2002

	360	370	380
348	TTGTGCCTGGAAT	CCAGAGTGATAGCTCCTCATCCTC	
350	TTGTGCCTGGAACCCAGAGTGATAGCTCCTCATCCTC		
350	TTGTGCCTGGAACCCAGAGTGATAGCTCCTCATCCTC		
127	TTGTGCCTGGAACCCAGAGTGATAGCTCCTCATCCTC		
120	TTGTGCCTGGAAY	CCAGAGTGATAGCTCCTCATCCTC	
	430	440	450
418	AGAAAATTCCCCAGCATCAACTGATGTAGATAGTTCA		
420	AGAAAATTCCCCAGCATCAACTGATGTAGATAGTTCA		
420	AGAAAATTCCCCAGCATCAACTGATGTAGATAGTTCA		
197	AGAAAATTCCCCAGCATCAACTGATGTAGATAGTTCA		
190	AGAAAATTCCCCAGCATCAACTGATGTAGATAGTTCA		
	500	510	520
488	AACGATGACGTTGAGCCGTCAAGTGATCTTACAGGAA		
490	AACGATGACGTTGAGCCGTCAAGTGATCTTACAGGAA		
490	AACGATGACGTTGAGCCGTCAAGTGATCTTACAGGAA		
267	AACGATGACGTTGAGCCGTCAAGTGATCTTACAGGAA		
260	AACGATGACGTTGAGCCGTCAAGTGATCTTACAGGAA		
	570	580	590
558	AACTACAAGAAGGTGGTAAACTGGAGGAGTCTAA AAC		
560	AACTACAAGAAGGTGGTAAACTGGAGGAGTCTAA AAC		
560	AACTACAAGAAGGTGGTAAACTGGAGGAGTCTAA AAC		
337	AACTACAAGAAGGTGGTAAACTGGAGGAGTCTAA AAC		
330	AACTACAAGAAGGTGGTAAACTGGAGGAGTCTAA AAC		
	640	650	660
628	ATCTGATAGGATCAGAGAGAGGGGCATCCCTCCACCT		
630	ATCTGATAGGATCAGAGAGAGGGGCATCCCTCCACCT		
630	ATCTGATAGGATCAGAGAGAGGGGCATCCCTCCACCT		
407	ATCTGATAGGATCAGAGAGAGGGGCATCCCTCCACCT		
400	ATCTGATAGGATCAGAGAGAGGGGCATCCCTCCACCT		

Fig.10  
Sheet 4

Fig.10 SHEET 3



49/75

JUN 25 2002

390	400	410	420
AACAGAT	CAATTTGAGTTC	GCTGAGACATCTCC	10con. seq
AACAGACCAATTTGAGTTC	ACTGAGACATCTCC		11con. seq
AACAGACCAATTTGAGTTC	ACTGAGACATCTCC		19con. seq
AACA	ACCAATTTGAGTTC	ACTGAGACATCTCC	86CON. SEQ
AACAGACCAATTTGAGTTC	ACTGAGACATCTCC		pcrsbe2con. seq
460	470	480	490
ACAATGGAACACGCTAGCCAGATTAA	AACTGAG		10con. seq
ACAATGGAACACGCTAGCCAGATTAA	AACTGAG		11con. seq
ACAATGGAACACGCTAGCCAGATTAA	AACTGAG		19con. seq
ACAATGGAACACGCTAGCCAGATTAA	AACTGAG		86CON. SEQ
ACAATGGAACACGCTAGCCAGATTAA	AACTGAG		pcrsbe2con. seq
530	540	550	560
GTGTTGAAGAGCTGGATTTTGCTTCATCACTAC			10con. seq
GTGTTGAAGAGCTGGATTTTGCTTCATCACTAC			11con. seq
GTGTTGAAGAGCTGGATTTTGCTTCATCACTAC			19con. seq
GTGTTGAAGAGCTGGATTTTGCTTCATCACTAC			86CON. SEQ
GTGTTGAAGAGCTGGATTTTGCTTCATCACTAC			pcrsbe2con. seq
600	610	620	630
ATTAAATACTTCTGAAGAGACAATTATTGATGA			10con. seq
ATTAAATACTTCTGAAGAGACAATTATTGATGA			11con. seq
ATTAAATACTTCTGAAGAGACAATTATTGATGA			19con. seq
ATTAAATACTTCTGAAGAGACAATTATTGATGA			86CON. SEQ
ATTAAATACTTCTGAAGAGACAATTATTGATGA			pcrsbe2con. seq
670	680	690	700
GGACTTGGTCAGAAGATTTATGAAATAGACCCC			10con. seq
GGACTTGGTCAGAAGATTTATGAAATAGACCCC			11con. seq
GGACTTGGTCAGAAGATTTATGAAATAGACCCC			19con. seq
GGACTTGGTCAGAAGATTTATGAAATAGACCCC			86CON. SEQ
GGACTTGGTCAGAAGATTTATGAAATAGACCCC			pcrsbe2con. seq

Fig.10 SHEET 4

JUN 25 2002

50/75

	710	720	730
698	CTTTTGACAAACTATCGTCAACACCTTGATTACAGGT		
700	CTTTTGACAAACTATCGTCAACACCTTGATTACAGGT		
700	CTTTTGACAAACTATCGTCAACACCTTGATTACAGGT		
477	CTTTTGACAAACTATCGTCAACACCTTGATTACAGGT		
470	CTTTTGACAAACTATCGTCAACACCTTGATTACAGGT		
	780	790	800
768	ACAAGTATGAGGGTGGTTTGAAGCTTTTCTCGTGG		
770	ACAAGTATGAGGGTGGTTTGAAGC-TTTTCTCGTGG		
770	ACAAGTATGAGGGTGGTTTGAAGCCTTTTCTCGTGG		
547	ACAAGTATGAGGGTGGTTTGAAGCTTTTCTCGTGG		
540	ACAAGTATGAGGGTGGTTTGAAGCTTTTCTCGTGG		
	850	860	870
838	AGGTATCACTTACCGTGAGTGGGCTCCTGGTGCCAG		
839	AGGTATCACTTACCGTGAGTGGGCTCCTGGTGCCAG		
840	AGGTATCACTTACCGTGAGTGGGCTCCTGGTGCCAG		
617	AGGTATCACTTACCGTGAGTGGGCTCCTGGTGCCAG		
610	AGGTATCACTTACCGTGAGTGGGCTCCTGGTGCCAG		
	920	930	940
908	GACGCAAATGCTGACATTATGACTCGGAATGAATTTG		
909	GACGCAAATGCTGACATTATGACTCGGAATGAATTTG		
910	GACGCAAATGCTGACATTATGACTCGGAATGAATTTG		
687	GACGCAAATGCTGACATTATGACTCGGAATGAATTTG		
680	GACGCAAATGCTGACATTATGACTCGGAATGAATTTG		
	990	1000	1010
978	ATGGTTCTCCTGCAATTCCTCATGGGTCCAGAGTGAA		
979	ATGGTTCTCCTGCAATTCCTCATGGGTCCAGAGTGAA		
980	ATGGTTCTCCTGCAATTCCTCATGGGTCCAGAGTGAA		
757	ATGGTTCTCCTGCAATTCCTCATGGGTCCAGAGTGAA		
750	ATGGTTCTCCTGCAATTCCTCATGGGTCCAGAGTGAA		

Fig.10  
Sheet 6

Fig.10 SHEET 5

51/75

JUN 25 2002

740	750	760	770	
ATTCACAGTACAAGAACTGAGGGAGGCAATTG				10con. seq
ATTCACAGTACAAGAACTGAGGGAGGCAATTG				11con. seq
ATTCACAGTACAAGAACTGAGGGAGGCAATTG				19con. seq
ATTCACAGTACAAGAACTGAGGGAGGCAATTG				86CON. SEQ
ATTCACAGTACAAGAACTGAGGGAGGCAATTG				pcrsbe2con. seq

810	820	830	840	
TTATGAAA <b>G</b> AATGGGTTTCACTCGTAGTGCTAC				10con. seq
TTATGAAAAAATGGGTTTCACTCGTAGTGCTAC				11con. seq
TTATGAAAAAATGGGTTTCACTCGTAGTGCTAC				19con. seq
TTATGAAAAAATGGGTTTCACTCGTAGTGCTAC				86CON. SEQ
TTATGAAAAAATGGGTTTCACTCGTAGTGCTAC				pcrsbe2con. seq

880	890	900	910	
TCAGCTGCCCTCATTGG <b>G</b> GATTTCAACAATTGG				10con. seq
TCAGCTGCCCTCATTGGAGATTTCAACAATTGG				11con. seq
TCAGCTGCCCTCATTGGAGATTTCAACAATTGG				19con. seq
TCAGCTGCCCTCATTGGAGATTTCAACAATTGG				86CON. SEQ
TCAGCTGCCCTCATTGGAGATTTCAACAATTGG				pcrsbe2con. seq

950	960	970	980	
GTGTCTG <b>A</b> GAGATTTTTCTGCCAAATAATGTGG				10con. seq
GTGTCTGGGAGATTTTTCTGCCAAATAATGTGG				11con. seq
GTGTCTGGGAGATTTTTCTGCCAAATAATGTGG				19con. seq
GTGTCTGGGAGATTTTTCTGCCAAATAATGTGG				86CON. SEQ
GTGTCTGGGAGATTTTTCTGCCAAATAATGTGG				pcrsbe2con. seq

1020	1030	1040	1050	
GATACGTATGGACACTCCATCAGGTGTTAAGGA				10con. seq
GATACGTATGGACACTCCATCAGGTGTTAAGGA				11con. seq
GATACGTATGGACACTCCATCAGGTGTTAAGGA				19con. seq
GATACGTATGGACACTCCATCAGGTGTTAAGGA				86CON. SEQ
GATACG <b>Y</b> ATGGACACTCCATCAGGTGTTAAGGA				pcrsbe2con. seq

Fig. 10 SHEET 6

JUN 25 2002

52/75

	1060	1070	1080
1048	TTCCATTCCCTGCTTGGATCAACTACTCTTTACAGCTT		
1049	TTCCATTCCCTGCTTGGATCAACTACTCTTTACAGCTT		
1050	TTCCATTCCCTGCTTGGATCAACTACTCTTTACAGCTT		
827	TTCCATTCCCTGCTTGGATCAACTACTC--TACAGCTT		
820	TTCCATTCCCTGCTTGGATCAACTACTCTTTACAGCTT		
	1130	1140	1150
1118	GATCCACCCGAAGAGGAGAGGTATATCTTCCAACACC		
1119	GATCCACCCGAAGAGGAGAGGTATATCTTCCAACACC		
1120	GATCCACCCGAAGAGGAGAGGTATATCTTCCAACACC		
895	GATCCACCCGAAGAGGAGAGGTATATCTTCCAACACC		
890	GATCCACCCGAAGAGGAGAGGTAT <sup>R</sup> TCTTCCAACACC		
	1200	1210	1220
1188	ATGAATCTCATATTGGAATGAGTAGTCCGGAGCCTAA		
1189	ATGAATCTCATATTGGAATGAGTAGTCCGGAGCCTAA		
1190	ATGAATCTCATATTGGAATGAGTAGTCCGGAGCCTAA		
965	ATGAATCTCATATTGGAATGAGTAGTCCGGAGCCTAA		
960	ATGAATCTCATATTGGAATGAGTAGTCCGGAGCCTAA		
	1270	1280	1290
1258	TCTTCCTCGCATAAAAAAAGCTTGGGTACAATGCG <sup>G</sup> T		*
1259	TCTTCCTCGCATAAAAAA-GCTTGGGTACAATGCGCT		
1260	TCTTCCTCGCATAAAAAA-GCTTGGGTACAATGCGCT		
1035	TCTTCCTCGCATAAAAAA-GCTTGGGTACAATGCGCT		
1030	TCTTCCTCGCATAAAAAA-SCTTGGGTACAATGCG <sup>G</sup> T		*
	1340	1350	1360
1328	TGCTAGTTTTGGTTATCATGTCACAAATTTTTTTGCA		
1328	TGCTAGTTTTGGTTATCATGTCACAAATTTTTTTGCA		
1329	<sup>G</sup> GCTAGTTTTGGTTATCATGTCACAAATTTTTTTGCA		
1104	TGCTAGTTTTGGTTATCATGTCACAAATTTTTTTGCA		
1099	TGCTAGTTTTGGTTATCATGTCACAAATTTTTTTGCA		

Fig.10  
Sheet 8

Fig.10 SHEET 7

JUN 25 2002

53/75

1090	1100	1110	1120	
CCTGATGAAATTCCATATAATGGAATATATTAT	10con. seq			
CCTGATGAAATTCCATATAATGGAATATATTAT	11con. seq			
CCTGATGAAATTCCATATAATGGAATACATTAT	19con. seq			
CCTGATGAAATTCCATATAATGGAATATATTAT	86CON. SEQ			
CCTGATGAAATTCCATATAATGGAATATATTAT	pcrsbe2con. seq			
1160	1170	1180	1190	
CACGGCCAAAGAAACCAAAGTCGCTGAGAATAT	10con. seq			
CACGGCCAAAGAAACCAAAGTCGCTGAGAATAT	11con. seq			
CACGGCCAAAGAAACCAAAGTCGCTGAGAATAT	19con. seq			
CACGGCCAAAGAAACCAAAGTCGCTGAGAATAT	86CON. SEQ			
CACGGCCAAAGAAACCAAAGTCGCTGAGAATAT	pcrsbe2con. seq			
1230	1240	1250	1260	
AATTAACATCATACGTGAATTTTAGAGATGAAGT	10con. seq			
AATTAACATCATACGTGAATTTTAGAGATGAAGT	11con. seq			
AATTAACATCATACGTGAATTTTAGAGATGAAGT	19con. seq			
AATTAACATCATACGTGAATTTTAGAGATGAAGT	86CON. SEQ			
AATTAACATCATACGTGAATTTTAGAGATGAAGT	pcrsbe2con. seq			
1300	1310	1320	1330	
GCAAATTATGGCTATTCAAGAGCATTCTTATTA	10con. seq			
GCAAATTATGGCTATTCAAGAGCATTCTTATTA	11con. seq			
GCAAATTATGGCTATTCAAGAGCATTCTTATTA	19con. seq			
GCAAATTATGGCTATTCAAGAGCATTCTTATTA	86CON. SEQ			
GCAAATTATGGCTATTCAAGAGCATTCTTATTA	pcrsbe2con. seq			
1370	1380	1390	1400	
CCAAGCAGCCGTTTTGGAACGCCCGACGACCTT	10con. seq			
CCAAGCAGCCGTTTTGGAACGCCCGACGACCTT	11con. seq			
CCAAGCAGCCGTTTTGGAACGCCCGACGACCTT	19con. seq			
CCAAGCAGCCGTTTTGGAACGCCCGACGACCTT	86CON. SEQ			
CCAAGCAGCCGTTTTGGAACGCCCGACGACCTT	pcrsbe2con. seq			

Fig. 10 SHEET 8

JUN 25 2002

54/75

	1410	1420	1430
1398	AAGTCTTTGATTGATAAAGCTCATGAGCTAGGAATTG		
1398	AAGTCTTTGATTGATAAAGCTCATGAGCTAGGAATTG		
1399	AAGTCTTTGATTGATAAAGCTCATGAGCTAGGAATTG		
1174	AAGTCTTTGATTGATAAAGCTCATGAGCTAGGAATTG		
1169	AAGTCTTTGATTGATAAAGCTCATGAGCTAGGAATTG		
	1480	1490	1500
1468	CAAATAATACTTTAGATGGACTGAACATGTTTGACGG		
1468	CAAATAATACTTTAGATGGACTGAACATGTTTGACGG		
1469	CAAATAATACTTTAGATGGACTGAACATGTTTGACGG		
1244	CAAATAATACTTTAGATGGACTGAACATGTTTGACGG		
1239	CAAATAATACTTTAGATGGACTGAACATGTTTGACGG		
	1550	1560	1570
1538	TGGTTATCATTGGATGTGGGATTCCGCCTCTTTAAC		
1538	TGGTTATCATTGGATGTGGGATTCCGCCTCTTTAAC		
1539	TGGTTATCATTGGATGTGGGATTCCGCCTCTTTAAC		
1314	TGGTTATCATTGGATGTGGGATTCCGCCTCTTTAAC		
1309	TGGTTATCATTGGATGTGGGATTCCGCCTCTTTAAC		
	1620	1630	1640
1608	TCAAATGCGAGATGGTGGTTGGATGAGTTCAAATTTG		
1607	TCAAATGCGAGATGGTGGTTGGATGAGTTCAAATTTG		
1609	TCAAATGCGAGATGGTGGTTGGATGAGTTCAAATTTG		
1384	TCAAATGCGAGATGGTGGTTGGATGAGTTCAAATTTG		
1379	TCAAATGCGAGATGGTGGTTGGATGAGTTCAAATTTG		
	1690	1700	1710
1678	TGTACTACCCACGGATTATCGGTGGGATTCACTGG		
1677	TGTATACTACCCACGGATTATCGGTGGGATTCACTGG		
1679	TGTATACTACCCACGGATTATCGGTGGGATTCACTGG		
1454	TGTATACTACCCACGGATTATCGGTGGGATTCACTGG		
1449	TGTATACTACCCACGGATTATCGGTGGGATTCACTGG		

Fig.10  
Sheet 10

Fig.10 SHEET 9

55/75

JUN 25 2002

1440	1450	1460	1470	
TTGTTCTCATGGACATTGTT	CACAGCCATGCAT	10con. seq		
TTGTTCTCATGGACAT	GTTTACAGCCATGCAT	11con. seq		
TTGTTCTCATGGACATTGTT	CACAGCCATGCAT	19con. seq		
TTGTTCTCATGGACATTGTT	CACAGCCATGCAT	86CON. SEQ		
TTGTTCTCATGGACATTGTT	CACAGCCATGCAT	pcrsbe2con. seq		
1510	1520	1530	1540	
CACAGATAGTTGTTACTTT	CACTCTGGAGCTCG	10con. seq		
CACCGATAGTTGTTACTTT	CACTCTGGAGCTCG	11con. seq		
CACCGATAGTTGTTACTTT	CACTCTGGAGCTCG	19con. seq		
CACCGATAGTTGTTACTTT	CACTCTGGAGCTCG	86CON. SEQ		
CACAGATAGTTGTTACTTT	CACTCTGGAGCTCG	pcrsbe2con. seq		
1580	1590	1600	1610	
TATGGAAACTGGGAGGTACT	TAGGTATCTTCTC	10con. seq		
TATGGAAACTGGGAGGTACT	TAGGTATCTTCTC	11con. seq		
TATGGAAACTGGGAGGTACT	TAGGTATCTTCTC	19con. seq		
TATGGAAACTGGGAGGTACT	TAGGTATCTTCTC	86CON. SEQ		
TATGGAAACTGGGAGGTACT	TAGGTATCTTCTC	pcrsbe2con. seq		
1650	1660	1670	1680	
ATGGATTTAGATTTGATGGT	GTGACATCAATGA	10con. seq		
ATGGATTTAGATTTGATGGT	GTGACATCAATGA	11con. seq		
ATGGATTTAGATTTGATGGT	GTGACATCAATGA	19con. seq		
ATGGATTTAGATTTGATGGT	GTGACATCAATGA	86CON. SEQ		
ATGGATTTAGATTTGATGGT	GTGACATCAATGA	pcrsbe2con. seq		
1720	1730	1740	1750	
GAACTACGAGGAATACTTT	GGACTCGCAACTGA	10con. seq		
GAACTACGAGGAATACTTT	GGACTCGCAACTGA	11con. seq		
GAACTACGAGGAATACTTT	GGACTCGCAACTGA	19con. seq		
GAACTACGAGGAATACTTT	GGACTCGCAACTGA	86CON. SEQ		
GAACTACGAGGAATACTTT	GGACTCGCAACTGA	pcrsbe2con. seq		

Fig. 10 SHEET 10

JUN 25 2002

56/75

	1760	1770	1780
1748	TGTGGATGCTGTTGTGTATCTGATGCTGGTCAACGAT		
1747	TGTGGATGCTGTTGTGTATCTGATGCTGGTCAACGAT		
1749	TGTGGATGCTGTTGTGTATCTGATGCTGGTCAACGAT		
1524	TGTGGATGCTGTTGTGTATCTGATGCTGGTCAACGAT		
1519	TGTGGATGCTGTTGTGTATCTGATGCTGGTCAACGAT		
	1830	1840	1850
1818	ATTGGTGAAGATGTTAGCGGAATGCCGACATTTTGT		
1817	ATTGGTGAAGATGTTAGCGGAATGCCGACATTTTGT		
1819	ATTGGTGAAGATGTTAGCGGAATGCCGACATTTTGT		
1594	ATTGGTGAAGATGTTAGCGGAATGCCGACATTTTGT		
1589	ATTGGTGAAGATGTTAGCGGAATGCCGACATTTTGT		
	1900	1910	1920
1888	ATCGGCTGCATATGGCAATTGCTGATAAATGGATTGA		
1887	ATCGGCTGCATATGGCAATTGCTGATAAATGGATTGA		
1889	ATCGGCTGCATATGGCAATTGCTGATAAATGGATTGA		
1664	ATCGGCTGCATATGGCAATTGCTGATAAATGGATTGA		
1659	ATCGGCTGCATATGGCAATTGCTGATAAATGGATTGA		
	1970	1980	1990
1958	GGGTGATATTGTTTCATACACTGACAAATAGAAGATGG		
1957	GGGTGATATTGTTTCATACACTGACAAATAGAAGATGG		
1959	GGGTGATATTGTTTCATACACTGACAAATAGAAGATGG		
1734	GGGTGATATTGTTTCATACACTGACAAATAGAAGATGG		
1729	GGGTGATATTGTTTCATACACTGACAAATAGAAGATGG		
	2040	2050	2060
2028	GATCAAGCTCTAGTCGGTGATAAACTATAGCATTCT		
2027	GATCAAGCTCTAGTCGGTGATAAACTATAGCATTCT		
2029	GATCAAGCTCTAGTCGGTGATAAACTATAGCATTCT		
1804	GATCAAGCTCTAGTCGGTGATAAACTATAGCATTCT		
1799	GATCAAGCTCTAGTCGGTGATAAACTATAGCATCT		

Fig.10  
Sheet 12

Fig. 10 SHEET 11



57/75

JUN 25 2002

1790	1800	1810	1820	
CTTATTCATGGGCTTTTCCCAGATGCAATTACC	10con. seq			
CTTATTCATAGGCTTTTCCCAGATGCAATTACC	11con. seq			
CTTATTCATGGGCTTTTCCCAGATGCAATTACC	19con. seq			
CTTATTCATGGGCTTTTCCCAGATGCAATTACC	86CON. SEQ			
CTTATTCACGGGCTTTTCCCAGATGCAATTACC	pcrsbe2con. seq			
1860	1870	1880	1890	
TTCCCGTTCAAGATGGGGGTGTTGGCTTTGACT	10con. seq			
TTCCCGTTCAAGATGGGGGTGTTGGCTTTGACT	11con. seq			
TTCCCGTCAAGAAGGGGGGTGTTGGCTTTGACT	19con. seq			
TTCCCGTTCAAGATGGGGGTGTTGGCTTTGACT	86CON. SEQ			
TTCCCGTTCAAGATGGGGGTGTTGGCTTTGACT	pcrsbe2con. seq			
1930	1940	1950	1960	
GTTGCTCAAGAAACGGGATGAGGATTGGAGAGT	10con. seq			
GTTGCTCAAGAAACGGGATGAGGATTGGAGAGT	11con. seq			
GTTGCTCAAGAAACGGGATGAGGATTGGAGAGT	19con. seq			
GTTGCTCAAGAAACGGGATGAGGATTGGAGAGT	86CON. SEQ			
GTTGCTCAAGAAACGGGATGAGGATTGGAGAGT	pcrsbe2con. seq			
2000	2010	2020	2030	
TCGGAAAAGTGTGTTTCATACGCTGAAAGTCAT	10con. seq			
TCGGAAAAGTGTGTTTCATACGCTGAAAGTCAT	11con. seq			
TCGGAAAAGTGTGTTTCATACGCTGAAAGTCAT	19con. seq			
TCGGAAAAGTGTGTTTCATACGCTGAAAGTCAT	86CON. SEQ			
TCGGAAAAGTGTGTTTCATACGCTGAAAGTCAT	pcrsbe2con. seq			
2070	2080	2090	2100	
GGCTGATGGACAAGGATATGTATGATTTTATGG	10con. seq			
GGCTGATGGACAAGGATATGTATGATTTTATGG	11con. seq			
GGCTGATGGACAAGGATATGTATGATTTTATGG	19con. seq			
GGCTGATGGACAAGGATATGTATGATTTTATGG	86CON. SEQ			
GGCTGATGGACAAGGATATGTATGATTTTATGG	pcrsbe2con. seq			

Fig. 10 SHEET 12

JUN 25 2002

58/75

	2110	*	2120	2130
2098	CTCTGGATAGACCGT	CAACATCATT	AATAGATCGTGG	
2097	CTCTGGATAGACCG	CAACATCATT	AATAGATCGTGG	
2099	CTCTGGATAGACCGT	CAACATCATT	AATAGATCGTGG	
1874	CTCTGGATAGACCG	CAACATCATT	AATAGATCGTGG	
1869	CTCTGGATAGACCG	YCAACAY	CATT	AATAGATCGTGG
	2180		2190	2200
2168	TATGGGATTAGGAGGAGAAGGGTACCTAAATTT	CATG		
2167	TATGGGATTAGGAGGAGAAGGGTACCTAAATTT	CATG		
2169	TATGGGATTAGGAGGAGAAGGGTACCTAAATTT	CATG		
1944	TATGGGATTAGGAGGAGAAGGGTACCTAAATTT	CATG		
1939	TATGGGATTAGGAGGAGAAGGGTACCTAAATTT	CATG		
	2250	*	2260	2270
2238	TTCCCTAGGGCTGAACAACACCTCTCTGATGGCTCAG			
2237	TTCCCTAGGGCTGA	CCACACCT	TTCTGATGGCTCAG	
2239	TTCCCTAGGGCTGAACAACACCTCTCTGATGGCTCAG			
2014	TTCCCTAGGGCTGAACAACACCTCTCTGATG	ACTCAG		
2009	TTCCCTAGGGCTGA	CAACACCTCTCTGATGGCTCAG		
	2320		2330	2340
2308	GCAGACGGAGATTTGACCTGGGAGATGCAGAATATTT			
2307	GCAGACGGAGATTTGACCTGGGAGATGCAGAATATTT			
2309	GCAGACGGAGATTTGACCTGGGAGATGCAGAATATTT			
2084	GCAGACGGAGATTTGACCTGGGAGATGCAGAATATTT			
2079	GCAGACGGAGATTTGACCTGGGAGATGCAGAATATTT			
	2390		2400	2410
2378	TATGCAGTATCTTGAAGATAAATATGAGTTT	TATGACT		
2377	TATGCAGTATCTTGAAGATAAATATGAGTTT	TATGACT		
2379	TATGCAGTATCTTGAAGATAAATATGAGTTT	TATGACT		
2154	TATGCAGTATCTTGAAGATAAATATGAGTTT	TATGACT		
2149	TATGCAGTATCTTGAAGATAAATATGAGTTT	TATGACT		

Fig.10  
Sheet 14

Fig. 10 SHEET 13

59/75

JUN 25 2002

2140	2150	2160	2170	
GATAGCATTACACAAGATGATTAGGCTTGTAAC				10con. seq
GATAGCATTGCACAAGATGATTAGGCTTGTAAC				11con. seq
GATAGCATTGCACAAGATGATTAGGCTTGTAAC				19con. seq
GATAGCATTGCACAAGATGATTAGGCTTGTAAC				86CON. SEQ
GATAGCATTGCACAAGATGATTAGGCTTGTAAC				pcrsbe2con. seq

2210	2220	2230	2240	
GGAAATGAATTCGGCCACCCTGAGTGGATTGAT				10con. seq
GGAAATGAATTCGGCCACCCTGAGTGGATTGAT				11con. seq
GGAAATGAATTCGGCCACCCTGAGTGGATTGAT				19con. seq
GGAAATGAATTCGGCCACCCTGAGTGGATTGAT				86CON. SEQ
GGAAATGAATTCGGCCACCCTGAGTGGATTGAT				pcrsbe2con. seq

2280	2290	2300	2310	
TAATTCCCAGAAACCAATTCAGTTATGATAAAT				10con. seq
TAATTCCCGGAAACCAATTCAGTTATGATAAAT				11con. seq
TAATCCCGGAAACCAATTCAGTTATGATAAAT				19con. seq
TAATTCCCGGAAACCAATTCAGTTATGATAAAT				86CON. SEQ
TAATTCCCGGAAACCAATTCAGTTATGATAAAT				pcrsbe2con. seq

2350	2360	2370	2380	
AAGATACCGTGGGTTGCAAGAATTTGACCGGGC				10con. seq
AAGATACCATGGGTTACAAGAATTTGACGGGC				11con. seq
AAGATACCGTGGGTTGCAAGAATTTGACCGGC				19con. seq
AAGATACCGTGGGTTGCAAGAATTTGACCGGGC				86CON. SEQ
AAGATACCATGGGTTGCAAGAATTTGACCGGGC				pcrsbe2con. seq

2420	2430	2440	2450	
TCAGAACACCAGTTCATATCACGAAAGGATGAA				10con. seq
TCAGAACACCAGTTCATATCACGAAAGGATGAA				11con. seq
TCAGAACACCAGTTCATATCACGAAAGGATGAA				19con. seq
TCAGAACACCAGTTCATATCACGAAAGGATGAA				86CON. SEQ
TCAGAACACCAGTTCATATCACGAAAGGATGAA				pcrsbe2con. seq

Fig. 10 SHEET 14

JUN 25 2002

60/75

	2460	2470	* 2480
2448	GGAGATAGGATGATTGTATTTGAAAAAGGAAACCTAG		
2447	GGAGATAGGATGATTGTATTTGAAAAGGAAACCTAG		
2449	GGAGATAGGATGATTGTATTTGAAAAAGGAAACCTAG		
2224	GGAGATAGGATGATTGTATTTGAAAAAGGAAACCTAG		
2219	GGAGATAGGATGATTGTATTTGAAAAGGAAACCTAG		
			*
	2530	2540	2550
2518	ATTCAGACTATCGCATAGGCTGCCTGAAGCCTGGAAA		
2517	ATTCAGACTATCGCATAGGCTGCCTGAAGCCTGGAAA		
2519	ATTCAGACTATCGCATAGGCTGCCTGAAGCCTGGAAA		
2294	ATTCAGACTATCGCATAGGCTGCCTGAAGCCTGGAAA		
2289	ATTCAGACTATCGCATAGGCTGCCTGAAGCCTGGAAA		
	2600	2610	2620
2588	TTTTGGTGGCTTCGGGAGAATTGATCATAATGCCGAA		
2587	TTTTGGTGGCTTCGGGAGAATTGATCATAATGCCGAA		
2589	TTTTGGTGGCTTCGGGAGAATTGATCATAATGCCGAA		
2364	TTTTGGTGGCTTCGGGAGAATTGATCATAATGCCGAA		
2359	TTTTGGTGGCTTCGGGAGAATTGATCATAATGCCGAA		
	2670	2680	* 2690
2658	CCTCGTTCAATTATGGTGTATGCACCTAGTAGAACAG		
2657	CCTCGTTCAATTATGGTGTATGCACCTAGTAGAACAG		
2659	CCTCGTTCAATTATGGTGTATGCACCTAGTAGAACAG		
2434	CCTCGTTCAATTATGGTGTATGCACCTAGTAGAACAG		
2429	CCTCGTTCAATTATGGTGTATGCACCTAGTAGAACAG		
			*
	2740	2750	2760
2722	-----AAGAAGAAGAAGAAGAAGTAGCAGTAGT		
2722	-----AGAAGTAGCAGTAGT		
2729	AAGAAGAAGAAGAAGAAGAAGAAGTAGCAGTAGT		
2501	AAGAAGAAGAAGAAGAAGAAGAAGTAGCAGTAGT		
2499	NAGAAGAAGAAGAAGAN-----		

Fig. 10  
Sheet 16

Fig. 10 SHEET 15

JUN 25 2002

61/75

2490	2500	2510	*	2520	
TTTTTGTCTTTAATTTTCACTGGACAAAAGGCT					10con. seq
TTTTTGTCTTTAATTTTCACTGGACAAATAGCT					11con. seq
TTTTTGTCTTTAATTTTCACTGGACAAAAGCT					19con. seq
TTTTTGTCTTTAATTTTCACTGGACAAAAGCT					86CON. SEQ
TTTTTGTCTTTAATTTTCACTGGACAAATAGCT					pcrsbe2con. seq
2560	2570	2580		2590	
ATACAAGGTTGCCTTGGACTCAGATGATCCACT					10con. seq
ATACAAGGTTGCTTGGACTCAGATGATCCACT					11con. seq
ATACAAGGTTGCCTTGGACTCAGATGATCCACT					19con. seq
ATACAAGGTTGCCTTGGACTCAGATGATCCACT					86CON. SEQ
ATACAAGGTTGCTTGGACTCAGATGATCCACT					pcrsbe2con. seq
2630	*	2640	*	2650	2660
TATTTACCTTTGAAGGATGGTATGATGATCGT					10con. seq
TATTTACCTCTGAAGGATCGTATGATGATCGT					11con. seq
TATTTACCTTTGAAGGATGGTATGATGATCGT					19con. seq
TATTTACCTTTGAAGGATGGTATGATGATCGT					86CON. SEQ
TATTTACCTCTGAAGGATCGTATGATGATCGT					pcrsbe2con. seq
2700	2710	2720		2730	
CAGTGGTCTATGCACTAGTAGACAAAG----					10con. seq
CAGTGGTCTATGCACTAGTAGACAAACT----					11con. seq
CAGTGGTCTATGCACTAGTAGACAAAGAAGAAG					19con. seq
CAGTGGTCTATGCACTAGTAGACAAAG--AAG					86CON. SEQ
CAGTGGTCTATGCACTAGTAGACAAANTAGAAG					pcrsbe2con. seq
2770	2780	2790		2800	
AGAAGAAGTAGTAGTAGAAGAAGAATGAACGAA					10con. seq
AGAAGAA <b>CCCAT</b> TG-----AAGAATGAACGAA					11con. seq
AGAAGAAGTAGTAGTAGAAGAAGAATGAACGAA					19con. seq
AGAAGAAGTAGTAGTAGAAGAAGAATGAACGAA					86CON. SEQ
----- <b>CCGNN</b> GAAGAAT-----					pcrsbe2con. seq

Fig. 10 SHEET 16

JUN 25 2002

62/75

2810 2820 2830

2786 CTTGTGATCGCGTTGAAAGATTTGAACGCCACATAGA  
2764 CTTGTGATCGCGTTGAAAGATTTGAACGTTACTTGG-  
2799 CTTGTGATCGCGTTGAAAGATTTGAACGCTACATAGA  
2571 CTTGTG  
2529 -----

2880 2890 2900

2856 CTTGGCGGAATTTTCATGTGACAACA-GGTTTGCAATT  
2829 CTTGGCGGAATTGCATGTGACAACAAGGTTTGCACTT  
2869 CTTGGCGGAATTTTCATGTGACACAA-GGTTTGCAATT  
2576  
2529 -----

2950 2960 2970

2925 GAGATGAAGTGCTGAACAAAACATATGTAAAATCGA  
2899 GAGATGAAGTGCTGAACAAA--CATATGTAAAATCGA  
2938 GAGATGAAGTGCTGAACAAA--CATATGTAAAATCGA  
2576  
2529 -----

3020 3030

2995 CCTGCAG-----CC  
2967 CCTGCAG-----CC  
3006 CCTGCAGGCCGGGGGACCCCTTAGTTCT  
2576  
2529 -----T

Fig.10  
Sheet 18

Fig. 10 SHEET 17

JUN 25 2002

63/75

2840	2850	2860	2870	
GCTTCTTGACGTATCTGGCAATATTGCAT	T	AGT		10con. seq
--TCATCCACATA--GAGC	TTCTTGACATCAGT			11con. seq
GCTTCTTGACGTATCTGGCAATATTGCATCAGT				19con. seq
				86CON. SEQ
				pcrsbe2con. seq
2910	2920	2930	2940	
CTTTCCACTATTAGTAGTGCAACGATATACGCA				10con. seq
CTTTCCACTATTAGTAGT	CCACCGATATACGCA			11con. seq
CTTTCCACTATTAGTAGTGCAACGATATACGCA				19con. seq
				86CON. SEQ
				pcrsbe2con. seq
2980	2990	3000	3010	
TGAATTTATGTCGAATGCTGGGACGATCGAATT				10con. seq
TGAATTTATGTCGAATGCTGGGACGATCGAATT				11con. seq
TGAATTTATGTCGAATGCTGGGACGATCGAATT				19con. seq
				86CON. SEQ
				pcrsbe2con. seq
				10con. seq
				11con. seq
				19con. seq
				86CON. SEQ
				pcrsbe2con. seq

Fig. 10 SHEET 18

JUN 25 2002

64/75

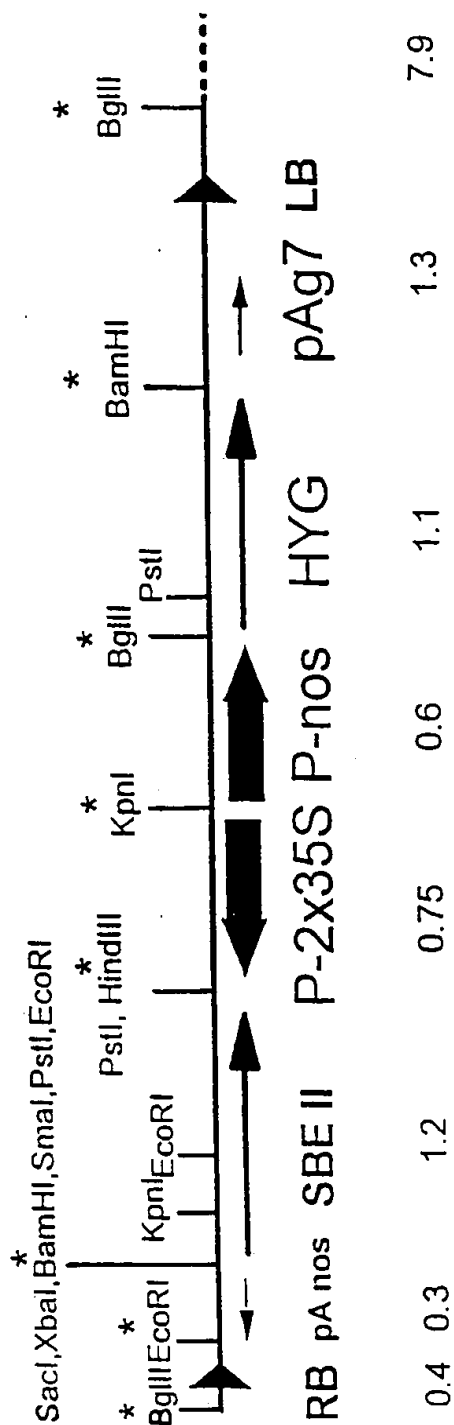
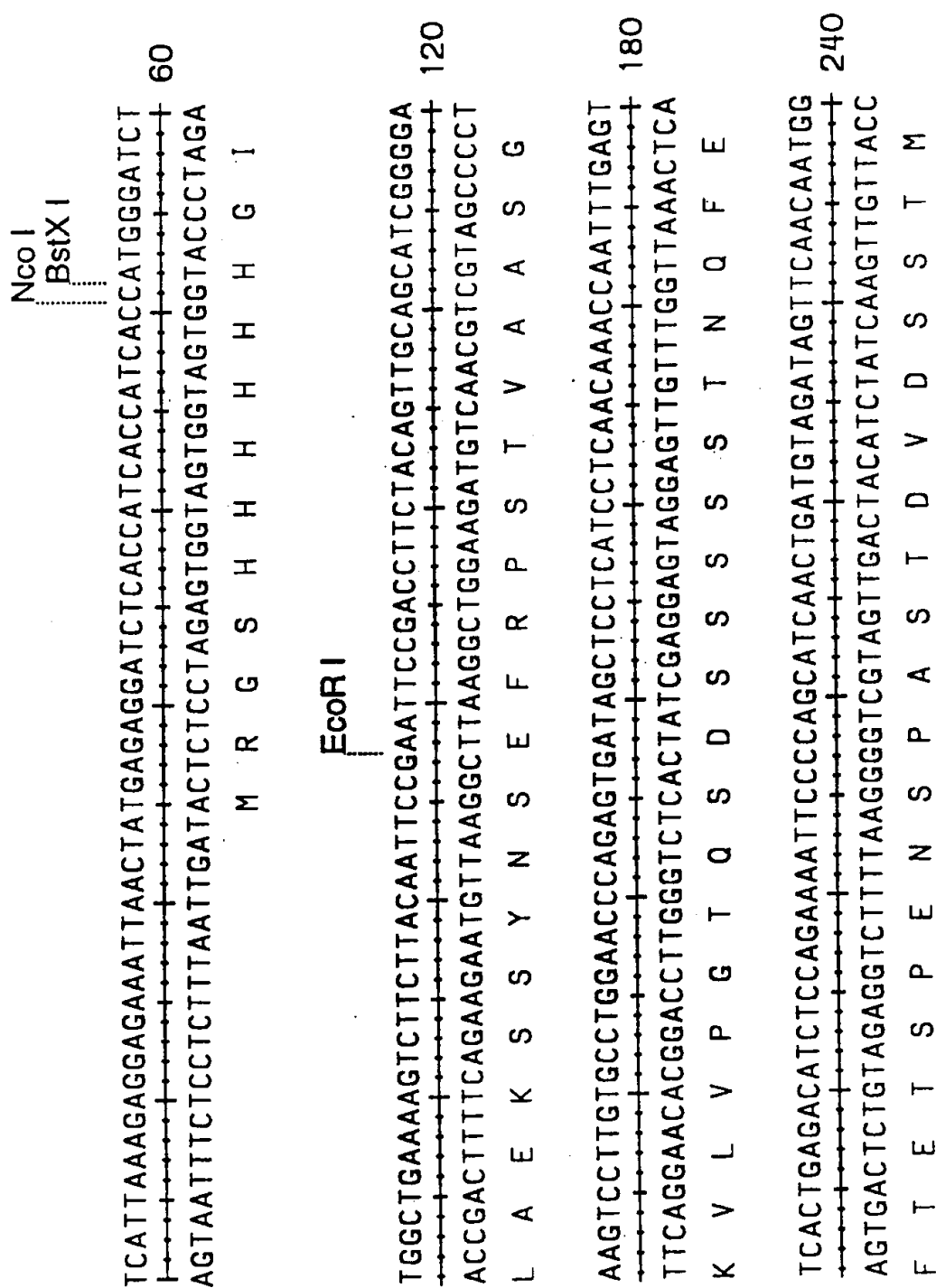


Fig. 11



65/75

Fig.12  
SHEET 1

JUN 25 2002

66/75

Fig. 12  
SHEET 2

AACACGCTAGCCAGATTAAAACTGAGAACGATGACGTTGAGCCGTC AAGTATCTTACAG 300  
TTGIGCGATCGGTCTAATTTTGACTCTTGCTACTGCAACTCGGCAGTTCACTAGAAATGTC  
E H A S Q I K T E N D D V E P S S D L T

GAAGTGTGAAGAGCTGGATTTTGCTTCACTACAAC TACAAGAGGTGGTAAACTGG 360  
CTTCACAAC TCTCGACCTAAACGAAGTAGTGATGTTGATGTTCTTCCACCATTTGACC  
G S V E E L D F A S S L Q L Q E G G K L

AGGAGTCTAAACATTAAATACTTCTGAAGAGACAAATTATTGATGAATCTGATAGGATCA 420  
TCCTCAGATTTTGTAATTTATGAAGACTTCTCTGTTAATAACTACTTAGACTATCCTAGT  
E E S K T L N T S E E T I I D E S D R I

GAGAGAGGGGCATCCCTCCACCTGGACTTGGTCAGAAGATTIATGAAATAGACCCCTTT 480  
CTCTCTCCCGTAGGAGGTGGACCTGAACCACTTCTAAATACTTTATCTGGGGGAAA  
R E R G I P P P G L G Q K I Y E I D P L

Hinc II

TGACAAACTATCGTCAACACACCTTGATTACAGGTATTCACAGTACAAGAACTGAGGGAGG 540  
ACTGTTGATAGCAGTTGTGGAAC TAAATGTC CATAAGTGTCATGTCTTTGACTCCCTCC  
L T N Y R Q H L D Y R Y S Q Y K K L R E

JUN 25 2002

67/75

Fig 12  
SHEET 3

Hind III

CAATGACAAGTATGAGGTGGTTTGGAGCTTTTCTCGTGGTTATGAAAAATGGGTT  
 GTTAACGTTCATACCTCCACCAACCTTCGAAAAAGACCAATACTTTTACCCAA  
 A I D K Y E G G L E A F S R G Y E K M G 600

Pvu II

TCACTCGTAGTGCTACAGGTATCACTTACCGTGAGTGGGCTCCTGGTCCCGAGTCAGCTG  
 AGTGAGCATCAGGATGTCATAGTGAATGGCACCTCACCCGAGGACCACGGGTCAGTCGAC  
 F T R S A T G I T Y R E W A P G A Q S A 660

CCCTCATTTGGAGATTICAACAATTGGGACGCAAAATGCTGACATTATGACTCGGAATGAAT  
 GGGAGTAACCTCTAAAGTTGTTAACCCCTGCGTTTACGACTGTAATACTGAGCCTTACTTA  
 A L I G D F N N W D A N A D I M T R N E 720

TTGGTGCTGGGAGATTTTCTGCCAAATAATGTGGATGGTTCTCTCGCAATTCCTCATG  
 AACCACAGACCCCTCTAAAAGACGGTTTATTACACCTACCAAGAGGACGTTAAGGAGTAC  
 F G V W E I F L P N N V D G S P A I P H 780

JUN 25 2002

68/75

SnaBI

GGTCCAGAGTGAAGATACGATGGACACTCCATCAGGIGTTAAGGATTCATTCTGCTT  
 840

CCAGGICTCACITCTATGCATACCTGTGAGGTAGTCCACAATTCCTAAGGTAAGGACGAA

G S R V K I R M D T P S G V K D S I P A

GGATCAACTACTCTTCACAGCTTCCTGATGAAATTCATATATGAATATATATGATC  
 900

CCTAGTTGATGAGAAGTGTGGAAGGACTACTTTAAGGTATATTACCTTATATAATACTAG

W I N Y S S Q L P D E I P Y N G I Y Y D

CACCCGAAGAGGAGGTATATCTTCCAACACCCACGGCCAAAGAAACCAAGTCGCTGA  
 960

GTGGGCTTCTCCTCCATATAGAAGGTTGTGGTGCCGGTTTCTTTGGTTTCAGCGACT

P P E E E R Y I F Q H P R P K K P K S L

GAATATGAATCTCATATTGGAATGAGTAGTCCGGAGCCTAAAATTAACATCATACGIGA  
 1020

CTTATATACITAGAGTATAACCTTACTCATCAGGCCCTCGGATTTTAATIGAGTATGCAC

R I Y E S H I G M S S P E P K I N S Y V

Fig.12  
 SHEET 4

JUN 25 2002

69/75

Fig.12  
SHEET 5

Xmn I	HinD III	
<p>             ATTTAGAGATGAAGTTCTTCCTCGCATAAAAAGCTTGGGIACAATGCGGTGCAAATTA              TAAATCCTACTTCAAGAGGAGCGTATTTTTCGAACCCATGTTACGCCACGTTTAAAT              N F R D E V L P R I K K L G Y N A V Q I           </p>		
		1080
<p>             TGGCTATTCAAGAGCATTCTTATTATGCTAGTTTGGTTATCATGTCACAAATTTTTTG              ACCGATAAGTTCTCGTAAGAATAATACGATCAAAACCAATAGTACAGTGTTTAAAAAAC              M A I Q E H S Y Y A S F G Y H V T N F F           </p>		
		1140
<p>             CACCAAGCAGCCGTTTGGAAACGCCGACGACCTTAAGTCTTTGATTGATAAAGCTCATG              GTGGTTCGTCGGCAAAACCTTGCGGGCTGCTGGAATTCAGAAACTAATTTTCGAGTAC              A P S S R F G T P D D L K S L I D K A H           </p>		
		1200
<p style="text-align: center;">Nsi I</p> <p>             AGCTAGGAATTGTTGTTCTCATGGACATTGTTTCACAGCCATGCAICAATAATACTTTAG              TCGATCCTTAACAACAAGAGTACCTGTAAACAAGTGTCGGTACGTAGTTTATTATGAATC              E L G I V V L M D I V H S H A S N N T L           </p>		
		1260

JUL 25 2002

70/75

Sac I

1320

ATGGACTGAACATGTTTGACGGCACCGATAGTTGTTACTTTCACTCTGGAGCTCGTGGTT  
TACCTGACTTGTACAACACTGCCGTGGCTATCAACAATGAAAGTGAGACCTCGAGCACCAA  
D G L N M F D G T D S C Y F H S G A R G

1380

ATCATTTGGATGTGGGATTCCTCCGCTTTTAACTATGGAACTGGGAGGTACTTAGGTATC  
TAGTAACCTACACCTAAGGGCGGAAATTTGATACCTTTGACCTCCATGAATCCATAG  
Y H W M W D S R L F N Y G N W E V L R Y

1440

TTCTCTCAAATGCGAGATGGTGGTTGGATGAGTTCAAAATTTGATGGATTTAGATTGATG  
AAGAGAGTTTACGCTCTACCAACCACTACTCAAGTTTAACTACCTAAATCTAAACTAC  
L L S N A R W W L D E F K F D G F R F D

1500

GTGTGACATCAATGATGTATACTCACCACGGATTATCGGTGGGATTCACCTGGGAACACG  
CACACTGTAGTTACTACATATGAGTGGTGCCTAATAGCCACCCCTAAGTGACCCCTTGATGC  
G V T S M M Y T H H G L S V G F T G N Y

Fig. 12  
SHEET 6

JUN 25 2002

71/75

Fig 12  
SHEET 7

Hinc II

AGGAATACTTTGGACTCGCAACTGATGTGGATGCTGTGTGTGTAICTGATGCTGGTCAACG 1560

TCCITTATGAACCTGAGCGTTGACTACACCTACGACAACACATAGACTACGACCAGTTGC

E E Y F G L A T D V D A V V Y L M L V N

ATCTTATTCATGGGCTTTTCCAGATGCAATTACCATTGGTGAAGATGTTAGCGGAATGC 1620

TAGAATAAGTACCCGAAAGGGTCTACGTTAATGGTAACCACTTCTACAATCGCCITACG

D L I H G L F P D A I T I G E D V S G M

CGACATTTTGTATCCCGTTCAGATGGGGGTGTGTGGCTTTGACTATCGGCTGCATATGG 1680

GCTGTAAACATAAGGGCAAGTTCTACCCCCACACCGAACTGATAGCCGACGTATACC

P T F C I P V Q D G G V G F D Y R L H M

CAATIGCTGATAAATGGATTGAGTTGCTCAAGAAACGGGATGAGGATTGGAGAGTGGGTG 1740

GTTAACGACTATTIACCTAACTCAACGAGTTCTTTGCCCTACTCCTAACCTCTCACCCAC

A I A D K W I E L L K K R D E D W R V G

ATATIGTTCATACACTGACAAATAGAAGATGGTCGGAAAGTGTGTTTCATACGCTGAAA 1800

TATAACAAGTATGTGACTGTTTATCTTCTACCAGCCTTTTCACACAAAGTATGCGACTTT

D I V H T L T N R R W S E K C V S Y A E

JUN 25 2002

72/75

Fig 12  
SHEET 8

GTCATGATCAAGCTCTAGTCGGTGATAAAACTATAGCAATTCGGCTGATGGACAAGGATA  
CAGTACTAGTTCGAGATCAGCCACTATTTTGATATCGTAAGACCGACTACCTGTTCCCTAT  
S H D Q A L V G D K T I A F W L M D K D 1860

TGTATGATTTTATGGCTCTGGATAGACCGCCAACATCAATTAATAGATCGTGGGATAGCAT  
ACATACTAAATACCGAGACCTATCTGGCGGTGTAGTAATTATCTAGCACCCCTATCGTA  
M Y D F M A L D R P P T S L I D R G I A 1920

Asp 718

Kpn I

TGCACAAGATGATTAGGCTTGTAACCTATGGGATTAGGAGGAGAAGGTACCTAAATTCA  
ACGTGTTCTACTAATCCGAACATTGATACCCCTAATCCTCCTCTCCCATGGATTTAAAGT  
L H K M I R L V T M G L G G E G Y L N F 1980

EcoRI

TGGGAAATGAATTGGCCACCCCTGAGTGGATTGATTCCCTAGGGCTGAACAACACCCTCT  
ACCCCTTACTTAAGCCGGTGGGACTCACCTAACTAAAGGGATCCCGACTTGTGTGGAGA  
M G N E F G H P E W I D F P R A E Q H L 2040



JUN 25 2002

73/75

Fig. 12  
SHEET 9

CTGATGACTCAGTAATCCCGGAAACCAATTCAGTTATGATAAAATGCAGACGGAGATTG 2100  
GACTACTGAGTCATTAAGGGCCTTTGGTTAAGTCAATACTATTACGTCTGCCCTCTAAAC  
S D D S V I P G N Q F S Y D K C R R R F

Ssp I

ACCTGGGAGATGCAGAATAATTAAGATACCGTGGGTGCAAGAATTIGACCGGGCTATGC 2160  
TGGACCCCTCTACGTCTTATAAATCTATGGCACCCCAACGTTCTTAACTGGCCCGATACG  
D L G D A E Y L R Y R G L Q E F D R A M

AGTATCTTGAAGATAAATATGAGTTTATGACTTCAGAACACCAGTTCATATCAGAAAGG 2220  
TCATAGAACITCTATTACTCAATACTGAAGCTTGGTCAAGTATAGTCTTCC  
Q Y L E D K Y E F M T S E H Q F I S R K

ATGAAGGAGATAGGATGATTGTATTIGAAAAAGGAACCTAGTTTIGTCTTTAATTTTC 2280  
TACTTCCTCTATCCTACTAACAATAAATTTTCCTTTGGATCAAAAACAGAAATTAAAG  
D E G D R M I V F E K G N L V F V F N F

ACTGGACAAAAGCTATTCAGACTATCGCATAGGCTGCCTGAAGCCTGGAAAAATACAAGG 2340  
TGACCTGTTTTTCGATAAGCTGATAGCGTATCCGACGGACTTCGGACCTTTTATGTCC  
H W T K S Y S D Y R I G C L K P G K Y K

Fig 12  
SHEET 10

TTATAAGTGGAAACTTCCTACCATACTAGCAGGAGCAAGTTAATACCACATACGTG  
E Y F T F E G W Y D D R P R S I M V Y A

CITGTAGAACAGCAGTGGTCTATGCACTAGTAGACAAAGAAGAAGAAGAAGAAG  
GAACATCTTGTGTCACCAGATACGTGATCATCTGTTCTTCTTCTTCTTCTTCTTC  
P C R T A V V Y A L V D K E E E E E E

AAGAAGAAGTAGCAGTAGTAGAAGAAGTAGTAGAAGAAGAATGAACGAACCTTGTG  
TTCCTTTCATCGTCATCATCTTCTTTCATCATCATCTTCTTCTTCTTCTTGAACAC  
E E E V A V V E E V V V E E E

2520 2578

STITUTE SHEET (RULE 26)

JUN 25 2002

75/75

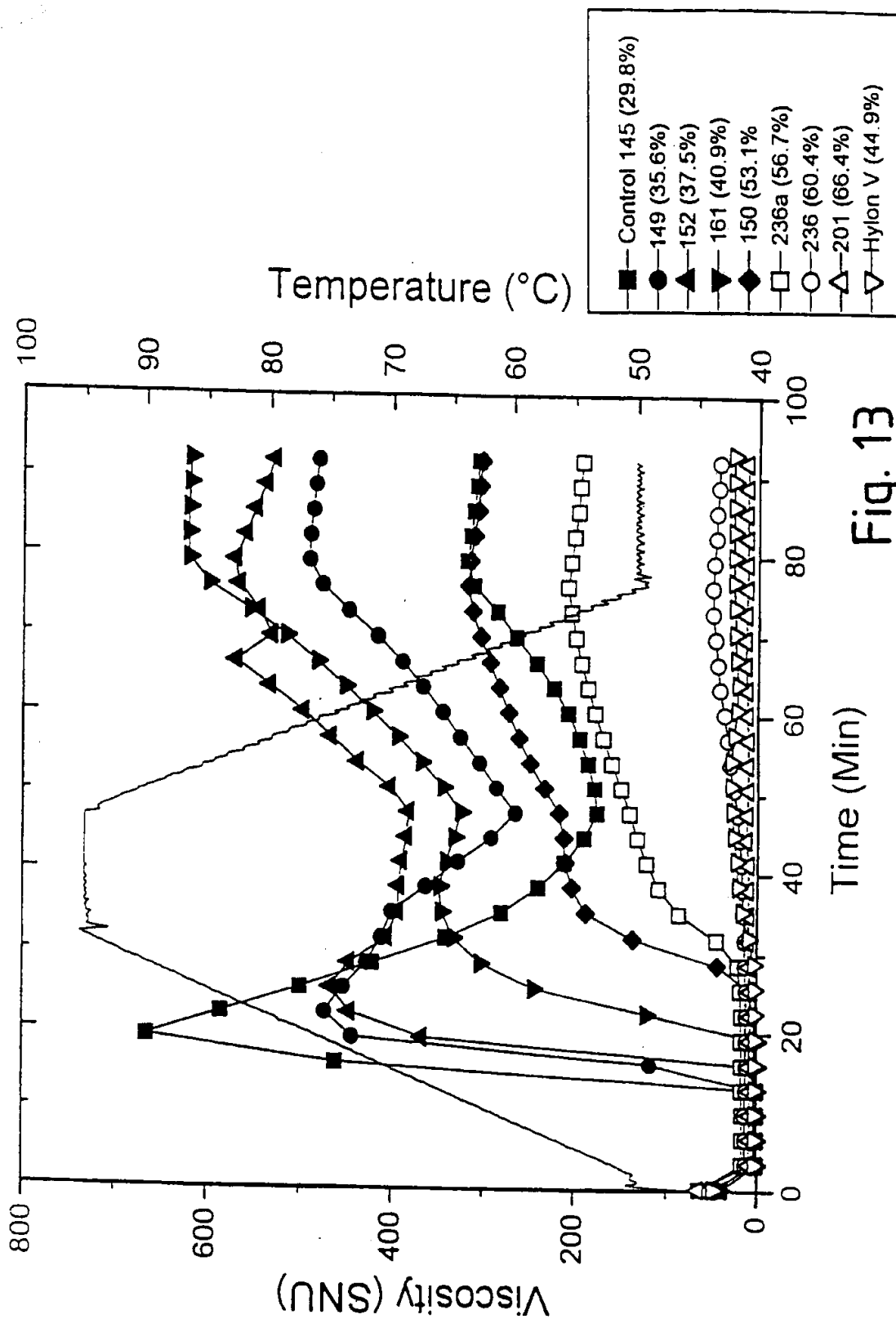


Fig. 13